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ON DEMAND ECONOMY & PROFESSIONAL SERVICE FIRMS

THE CASE OF QUALIFIED ACCOUNTANTS AND BOOKKEEPERS IN ITALY

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To my family

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INTRODUCTION & SUMMARY

On the 14th of October, while I am completing to write the first paragraph of my thesis, I decide to verify by myself the operation and the efficiency of an *on demand* business. Given my interest in understanding how on demand economy might involve the professional service firms, I choice to explore CoContest, a crowdsourcing platform for professional architectures and interior designers. The underlying functioning is very simple:

- *Contest launch*, the client has to enter into the Cocontest website and launches a contest, explaining his needs and defining the deadline for the project' s presentation;
- *Collaboration with professional*, the professionals interested to the contest interact with the client to realize an ad hoc solution;
- *Choice of the winner*, spent 14 days, the client has to evaluate the presented projects and selecting the best one.

As a normal client, I join to the platform and I follow the procedure to promote a competition for renovating my bedroom. Immediately after pressing the confirming button, an interactive chat opens: it is a Cocontest consultant, asking me if I need more information for beginning the contest. I remain amazed: what I read in the articles, it really happens! Alessandro introduces himself and communicates with me using the platform for answering to my doubts: in my precise case, I explain him my real intentions, getting information about the on demand business, and he kindly replies explaining the features and the mechanisms of Cocontest. It is exciting: a digital consultancy gets easily and efficiently! It is interesting to know what it is behind the apparent simplicity of the on demand professional service.

WHAT'S GOING ON? - The Economist (2016) reports a well-known study of Frey and Osborne about the probability of computerisation for 702 occupations published in 2013: it finds out that 47% of American workers, employed in transport, office support and service activities, as cashiers, counter and rental clerks, telemarketers and accountants, face the high risk of being substituted by a robot or a computer in performing their jobs. The technological development substantially challenges not only the industry, but also the service, in particular the professional service, characterized by a knowledge intensive content. New technologies enable the reduction of complexity and the commodification of the professional services, reducing their human dependence (Brock, 2006) and increasing the competitive pressure. In the audit industry, ad hoc designed and implemented computer systems can automatize the production process and provide basic advisory solution on standardize problems. In a hospital, a robot may replace a physician in a surgical intervention. In the law sector, legal documents templates are stored in a database, ready to be complete when they need. To complete the innovative scenario, the emergence of the on demand economy. The Economist (2015) poses the problem of the workers on tap, flexible workers offering their service on demand trough virtual platforms at competitive price. Cocontest is the evidence that the phenomenon involves also the professionals, revolutionizing the way of working and interacting with the clients as well as the perception of the professional figure. Clients might easily communicate with their consultants trough the website and dedicated app, while the PSFs should be able to codify their knowledge, reorganize their internal structure and invest in ICT infrastructure to provide qualified and fast answers to clients' problems. An irreversible revolution is in place, PSFs have to react riding the wave of the technological opportunity to redefine their role in a turbulent environment.

THE RESEARCH QUESTION – The key research question guiding and holding my dissertation consists in determining the organizational factors, in terms of processes and organization of work, that influence the PSFs' capacity to enter in the on demand economy and *grasp its value*. My thesis originates from a research project promoted by Delta Erre in collaboration with the Registry of Qualified Accountants and Bookkeepers of Padua and the Department of Economics and Management of the University of Padua: it provides an interesting picture of the evolution of the digitalization process in the Paduan accounting firms. The conservative results, compare to the environmental dynamism, and

the few information about the changes involving a sector having a relevant economic and social role in Italy raise my interest in deepening the study of the PSFs. The aim of my dissertation consists in investigating on the challenging facing the PSFs to provide potential guidelines for their future development, starting from the recognition of the disruptive changes affecting their competitive environment and a solid literature examination of knowledge intensive activities.

FIRST CHAPTER – *ON-DEMAND ECONOMY AND MANAGEMENT OF KIBS* – In the first chapter I introduce the phenomenon of the digital transformation, presenting the driving disruptive technologies and the consequent competitive challenges. Cloud computing, the availability of big data, complex software and robot change the way of working, enabling the performance of standardized tasks without any human actions and fostering the interactions and collaborations in the operating environment. They support the rise of new digitally driven business and represent critical resources to manage for the mature businesses to remain competitive in the market. I refer to the on demand economy, a new economic model creating a new way of purchasing goods and services, challenging the structure of the firms and the consolidated rule of the labour market. Then, I concentrate on the internal dynamics of the KIBS sector, which is characterized by the knowledge nature of their inputs and outputs and involved in processing and producing knowledge. Their intermediary function makes KIBS critical actors of the innovation systems: they are heavily involved in innovations initiatives and provide the resources necessary their clients innovation process.

SECOND CHAPTER – *WHAT MAKES PSF DIFFERENT* – In this chapter I focus my attention on the definition of a KIBS subsystem, the PSFs. PSFs rely on professional knowledge for developing and delivering an intangible customized service. As suggested by different authors in literature (i.e. Løwendahl et al., 2001; Subramaniam and Youndt, 2005), I analyse the different level of knowledge forming the distinctive intellectual capital of the firms. Know-how and skills are embodied by the professional workforce (human capital) at an individual level, they are rooted on a complex network of relationships (social capital) at a collective level and encoded, organized and stored within databases and structural systems (organizational capital) at an organizational level. By exploiting the current resources and exploring new form of knowledge, PSFs are able to provide

original ad hoc solution to the clients' problems and continuously develop their intellectual capital in everyday work. In the last part of the paragraph, I concentrate on the term *profession* to stress the distinctive features of the professional service contest. Adopting the framework of Von Nordenflycht (2010), knowledge base, self-regulation and professional ideology results to be the relevant variables for distinguishing the different PSFs. By applying this theoretical classification to the Italian occupational system, I investigate on the characteristics and dimension of the regulated profession.

THIRD CHAPTER – *CREDENCE GOODS AND THE NATURE OF PROFESSIONAL WORK* – In this chapter I emphasise the credence good nature of the PSFs, presenting the sources of the implied information asymmetry. The difficulty to measure the professionalism of the service provider makes the client unable to select the proper professional. In addition, the complexity of the service production combined with the idiosyncrasy of the output make it difficult to the client to assess the effort put by the professional and the value of his performances. Then, I focus on the institutions and mechanisms introduced to alleviate the uncertainty affecting the advisory relationship. While a good reputation plays a relevant role in signalling the quality of the service provider, building a successful long term relationship requires an intensive communication, a feeling of trust and reciprocal commitment. Therefore, considering the credence attribute and the relational nature of the PSFs, I illustrate how the introduction and the use of ICT contribute in reducing the ex ante and ex post information asymmetry leading to support the relationship retention.

FOURTH CHAPTER – H*OW PSFS COMPETE IN THE ON DEMAND ECONOMY* – This chapter is dedicated to the empirical analysis. Firstly, I introduced the research project originating my study and I describe the resulting sample. From a descriptive analysis, I move to the cluster analysis to investigate on the evolution of the digitalization within the professional sector. I proceed by formulating the research questions regarding the four variables selected for delineating the phenomenon: the completeness of the website, the social network provision, the inclination to on demand economy and the predisposition to work digitalization. After a brief explanation of the methodology used, I report the results a three-clusters solution, grouping the PSFs by three different level of digitalization. Finally, I describe the obtained clusters, stressing the variables resulted to significantly stand a cluster out from the others and I conclude by discussing the emerged results.

FUTURE RESEARCH – Considering the theoretical framework in the light of the results emerged from the empirical analysis, at the end of my dissertation I can identify three fields of interest for future research: the implementation of the digital technologies in the professional business makes a portion of the activities in the PSFs' portfolio *commodities* subjected to the price competition, enables the emergence of *new business models* counting on an enlarged variety of services and innovative systems of delivery and challenges the nature of the consultancy relationships, improving and innovating the *ways of relating* with the clients.

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1. CHAPTER

ON-DEMAND ECONOMY AND MANAGEMENT OF KIBS

1.1 Introduction

> Our role as agents in this society are reconsidered and shaped by technologies that are around us.

This is how Luciano Floridi, Director of Research and Professor of Philosophy and Ethics of Information at Oxford University, refers to the fourth industrial revolution in 2014: the new technology revolution that is challenging our way of live, communicate and work. After the ages of mechanization, the mass production and computerization, it comes the age of the cyber physical systems. New technologies are disruptive in creating an interconnected world, combining physical, digital and biological systems (Marr, 2016):

- cloud computing allows the storage, the computation and the networking of data according to the users' needs, in terms of place, time and quantity (Kushida et al., 2012);
- big data and artificial intelligence permit the collection and the analysis of a huge amount of data through advanced computerised procedures;
- robots replace the human actions in standardized manual and cognitive routines (The Economist, 2016);
- smart devices enable the individual interconnection and the access to a virtual ecosystem, where users are allowed to find or realize a solution to their specific problems (The Economist, 2015).
- digital platforms create global, efficient marketplaces for goods and labour services, where connected users can easily buy or sell what they want (Manyika et al., 2016)

A digital revolution radically impacts on individuals and society, changing the ways in

which people interact, communicate and collaborate (Schwab, 2016). It revolutionizes the economy, spanning from industrial to service and knowledge economy, and the business, providing disruptive ways to produce, offer and delivers their products, challenging the organizations and people involved and changing the competitive rules (Schwab, 2016). To be competitive, firms should grasp and exploit the possibilities offered by the new technologies for innovating themselves. Not only the firms' competitiveness passes through the digital investment, but also the Countries economic productivity. A research conducted by Accenture Strategy and Oxford Economics in 2015 finds out a significant relationship between a Country's digital density and their total factor productivity: it reveals that an appropriate combination of investment in digital skills, technologies and accelerators will increase the Italian Gross Domestic Product by 4.2 points in 2020.
Within the described dynamic and revolutionary scenario, this chapter is organized as follow. In the first paragraph, I describe the *on demand economy*, stressing the distinctive features of this emergent economic model and the implications for the actors involved. In the second paragraph, I focus my attention on the definition(s) of the KIBS sector, highlighting the knowledge nature and their intermediary function as determinants for their contribution to the innovation process.

1.2 Defining *On Demand economy*

On demand economy consists in:

> *«the economic model based on the use of online platforms that ensure the immediate matching between a user in need of a good or a service and another who is able to share his/her assets, goods, skills, time - with specific reference to labour law» (Dagnino, 2015).*

By analysing this definition, three actors result to be involved in this economic model:

- on demand companies, digitally driven firms acting as brokers by connecting demand and supply of goods and services with virtual platforms (Aloisi, 2015; Wladawsky-Berger, 2015);
- goods and services providers entering in a formal agreement with the on demand companies and supplying their competences and time to satisfy the customers' requests;
- costumers searching for a provider or a specific job available in the internet based platforms using their technologies devices (smartphones and tablets).

The innovativeness of the system stands in the role played by the virtual platforms, defined as:

> *«frameworks that permit collaborators –users, peers, providers – to undertake a range of activities, often creating de facto standards, forming entire ecosystems for value creation and capture» (Kenney and Zysman, 2015).*

According to Kushida et al. (2012), they simultaneously represent:

- an *innovation ecosystem* by decreasing the entry barriers, enabling experimentation and speeding up the implementation of new technologies;
- a *production environment*, new projects are developed using storage services and processing power tools, included in the cloud;
- a *marketplace* by supplying anytime and everywhere the offering to a global clientele, provided with an internet connection and a technological device.

Globalization and computerization, providing cheap computing power, sophisticated software and cloud services, drive the rise and accelerate the development of the on demand economy (The Economist, 2015). Computer technology enables the fragmentation of complex tasks in smaller, specialized parts, which can be delegated to experts located anywhere in the world (The Economist, 2015).
Moreover, it provides access to highly scalable, 'just in time' workers (De Stefano, 2015), offering underused or unused personal assets to earn more money (Aloisi, 2015). In some way, the on demand economy seems to be the extension of the sharing economy (The Economist, 2015; Dagnino, 2015; ADAPT, 2015), exemplified by BlaBlaCar and Airbnb and defined by Frenken et al. (2015) as:

> *«consumers granting each other temporary access to underutilized physical assets».*

1.2.1 The on demand economy and the organization of work

On demand economy fosters innovation and automatization in industrial economies with the fabrics 4.0 and promotes routinisation, division of labour and contracting out in the service economies and in the knowledge economies (The Economist, 2015; Dagnino, 2015). KIBS, deeply explained in the next paragraph, may codify part of their professionalized knowledge based, efficiently divide a complex project in simpler tasks, assigning

them to the smartest professionals occur (The Economist, 2015): Eden McCallum provides consulting services, Axiom offers legal services, Medicast is used to order medical visits, CoContest suggests design solutions. To give an idea of the phenomenon, a recent survey of the McKinsey Global Institute, considering United States and Europe-15, reveals that the workers who provide labour through digital platform amount to 9 million, representing the 6% of the total population of independent labour workers. Figure 1 shows in number the workforce involved in the major on demand companies, distinguished per operating sector.

Figure 1 Workers in on demand economy

Category	Company	Number of earners
Delivery and home services	Deliveroo	5,000 drivers
Engineering, creative, and business services	Upwork	12.5 million users
	Guru	2 million users
	Freelancer.com	>18 million users
	Hourly Nerd	17.5 consultants
	SamaSource	6,500 workers
	Witmart.com	7 million users
	TaskRabbit	25,000 service providers
	CrowdFlower	5 million contributors
	DogVacay	>25,000 sitters
Transportation	Uber	1 million drivers[2]
	Lyft	60,000 drivers
	Gett	100,000 cars
Health care	Freelance Physician	10,000 physicians
Education	Skillshare	>5,000 classes with 1.6 million students

Source: McKinsey Global Institute elaboration, 2016

While presenting the intrinsic features of division of labour and the ability to exploit underutilized assets, the on demand business varies in terms of workforce involved, payment issue, way of performing (Aloisi, 2015; ADAPT, 2015).

Huws (2015) shows that a single employment model for labour in the on demand economy does not exit. He selects seven platforms (Table 1), spanning from low skilled (Click Worker, Task Rabbit, Wonolo, Starbucks, Mila) to high skilled tasks (Elance-oDesk, Axiom), presenting differences in the employment status (employees or self-employed), the work mode (online or offline), the place of work (home, employment site, others) and final clients (individual or company). Some platforms set a minimum compensation based

on the market price and averagely hours spent on a certain task (Axiom, Click Worker, Task Rabbit), other let the payment conditions to the discretion of the trading parties (Eurofound, 2015). Some platforms earn a percentage of every transaction (Task Rabbit), other charge a fee for launching a competition (Cocontest) (Eurofound, 2015).

Table 1 Different employment models for labour in the on demand economy

	Professional status	Work mode	Place of work	Employment status	Final clients
Elance oDesk	High skill	online	home	Self empl.	company
Click worker	Clerical	online	home	Self empl.	company
Taskrabbit	Manual	online	others	Self empl.	company
Wonolo	Manual, Clerical	offline	emp.site	employee	individual
Starbucks	Manual	offline	emp.site	employee	individual
Mila	Manual	offline	others	employee	individual
Axiom	High skill	online	home	Self empl.	company

Source: Huws (2015)

De Stefano (2015) distinguishes between crowd work and work on demand via app, according to the way of providing performances:

- *Crowd woks* refers to jobs, mainly micro task, extremely specialized, completely executed through virtual platforms in response to global clients' requests (Click Worker, CoContest).
- *Work on demand via app* refers to traditional jobs, as transport, cleaning and clerical working activities performed in the real world, but offered, selected and matched using mobile apps (Task Rabbit, Wonolo, JustPark).

The on demand economy does not only challenge the nature of the firms, it involves a radical revolution in the working conditions. To provide a definition, Manyika et al. (2016) in a recent report of the McKinsey Global Institute refer to this new type of work as *digitally enabled independent work* consisting in:

> *«work that is intermediated through an online marketplace that improves search capabilities, lowers coordination costs, and provides richer signalling through mechanisms such as reviews or ratings».*

1.2.2 Managing work in the on demand economy

The on demand workforce is recognized as *workers on tap*, as it is wisely depicted in a famous pictures of The Economist (2015). Recent data from Intuit Inc. and Emergent

Research (2015) show that a typical on demand worker works on average 12 hour a week through his primary platform, mainly for earning an additional income and enjoying a flexible schedule. The survey of the McKinsey Global Institute confirms that the majority of the workers joins to digital platforms by choice rather than necessity.

The worker can decide when log to the platform, accept the task offered in any country and perform it, without any interventions by the on demand companies (Aloisi, 2015). Consequently to this flexibility, the competitive pressure is transferred from the company to the individual, caring for keeping his skills up-to-date and engaging a self-promotion activity in order to receive the desired remuneration (Maselli et al., 2016). Moreover, as self-employed workers, he bears the activities running costs, without benefits for the regulatory economic and social protection designed for the subordinated workers (ADAPT, 2015). Dagnino (2015) highlight three sources of weakness in the on demand workforce.

Absence of economic stability

Working on platform is purely on demand. The consequent market is subjected to high fluctuations, in period with high level of underemployment and unemployment: the facility to use a platform and the low operating costs induce a large pool of workers to offer their personal assets incurring to problems of demand saturation (ADAPT, 2015; Maselli et al., 2016). The precarious economic conditions have implications on the physical and mental health of the workers, directly by causing an accumulation of stress and pressure in acquiring and performing the services, indirectly by inducing to overworking phenomena and reducing the inclination to bear costs for buying equipment for guaranteeing his safety conditions during the performance in order to reduce the final price (ADAPT, 2015).

Reputation implications

Given the nature of the service intrinsically affected by a problem of asymmetry of information, systems of rating and feedbacks promoted by the clients are critical for the operation of the economic model. A misuse of these systems may feed discriminatory behaviours and illegal competitions with negative impacts on the worker's conditions inside the platforms. Dagnino (2015) evidences three undesired effects: worker's pressure on getting positive valuation, marginalization of new comers or occasional workers and discriminatory expulsion of workers enable to reach high standard performance requirements due to physical diseases.

Absence of critical skills

The platform operation is based on the assumption that the service providers have the competences to perform the required tasks. The individual has the responsibility to acquire, maintain and improve the skills necessary to profitably operate in the market. If the worker is not able to provide for his upskilling, he will be assigned to low skill activities, receiving a low remuneration.

In sum

On demand economy is not intrinsically good or bad for the workers. As suggested by The Economist (2015), it implies an individual choice between stability and flexibility: a middle-age professional running a family prefers stability over flexibility, while a student or a young professional may favour flexibility. Flexibility is only a side of the medal; the worker should be aware of possible consequences he incurs in working on a platform system. On demand economy is a disruptive economic model, introducing radical innovation in the more established economy (industry, service and knowledge economy) and economic dynamism in the work of labour, stagnant in the recent years. The sustainability of this economic model over the time requires a regulatory intervention (ADAPT, 2015), protecting the actors involved and disciplining the market dynamics in order to create wealth for the society.

1.3 KIBS definition

The label KIBS, which emphasized the importance of knowledge as main input of the firms, is firstly coined by Miles et al. (1995) for the firms involved in the *creation, accumulation and dissemination of knowledge* (Consoli and Hortelano, 2009).
KIBS are Knowledge Intensive Firms (KIFs), defined by Alvesson (2004) as:

> *«organizations that offer to the market the use of fairly sophisticated knowledge or knowledge-based products».*

The KIFs include both service and product KIFs. KIBS are a subcategory of the Knowledge Intensive Service Firms. KIBS are business service firms, i.e.

> *«private service companies which sell their services on markets and direct their service activities to other companies or to the public sector» (Toivonen, 2004).*

In literature, many authors analyse the KIBS without reaching a unique and agreed definition, but contributing in identifying their main characteristics: the relevance and pervasiveness of the knowledge dimension (knowledge intensity) and the activity of knowledge processor and producer, which implies an intensive interaction with their clients.
Den Hertog (2000) defines KIBS as:

> *«private companies or organizations, relying heavily on professional knowledge and supplying intermediate products and services that are knowledge-based".*

Bettencourt et al. (2002) state that:

> *«their primary value-added activities consist of the accumulation, creation, or dissemination of knowledge for the purpose of developing a customized service or product solution to satisfy the client's needs».*

Consoli and Hortelano (2009) reinforce the concept labelling KIBS as:

> *«intermediary firms which specialize in knowledge screening, assessment, evaluation, and trade their services in the form of consultancy».*

These two common aspects hide the heterogeneity of business services included in the KIBS. Despite the general criterion conveyed by the distinctive features, it is on the discretion of the researchers in charge of the specific study the interpretation of it in a strict or broader sense.
Miles et al. (1995) recognize two main groups of services according their link to the new technology:

- KIBS I or P-KIBS, the traditional professional services, liable to be intensive users of new technology, including marketing and advertising, some financial services, accounting and bookkeeping and legal services;
- KIBS II or T-KIBS, the new technology based KIBS, including computer networks/telematics, some telecommunications, software and other computer-related services, technical engineering R&D consultancy and high-tech boutiques.

While the former is characterized by the discretion and the competences of professionals, the latter is more standardized and the degree of professional discretion is lower (Consoli and Hortelano, 2009).

Schnabl and Zenker (2013) propose a classification of KIBS activities based on NACE, the Statistical Classification of Economic Activities in the European Community, Rev. 2, distinguishing them between two sections:

- Information and Communication, including computer programming, consultancy and related activities, information service activities, activities of head offices, management consultancy activities;
- Professional, scientific and technical activities, including architectural and engineering activities, technical testing and analysis, scientific research and development, advertising and market research.

Despite the researchers' differences, it is generally agreed that KIBS embrace the following broader categories of business services: computer and related activities; R&D services; legal, financial and management consultancy; advertising and marketing services; and technical services (Toivonen, 2004).

1.4 Nature of knowledge

KIBS firms are organizations that are particularly representative of the knowledge economy, since knowledge is their critical input, the primary source of competitive advantage and the main component of their output (Box 1).

Despite its importance, the concept of knowledge is problematic: it is difficult to identify, grasp and measure. Defining the meaning of knowledge is a never-ending search intriguing philosophers and economic theorists. Within the variety of theoretical definitions formulated in the organizational studies literature, Davenport and Prusak (1998) propose a working definition of knowledge in organizations:

> *«Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms».*

Box 1 Knowledge economy

In last two decades, economists observe the pervasiveness and the increasing role of knowledge, embodied in humans and codified in technologies, in the economic growth (OECD, 1996; o, 2006). The industrial, manufacturing based economy built on the physical capital, machines power and on the factory work gives way to the knowledge economy, based on the "*production, distribution and use of knowledge and information*" (OECD, 1996). Knowledge economy involves all sectors, high-tech and low-tech, manufacturing and services, retailing and agriculture, knowledge (Leadbeater, 1999, Rullani, 2004). Knowledge becomes the primary productive source leading to the value creation and competitive advantage (Rullani, 2004): an organization, combining and integrating codified information and its know-how, is able to innovate, create new products and exploit new markets (OECD,1996; Leadbeater, 1999). Work and capital maintain their leading role in the economy, but assuming a cognitive perspective: the work mainly results to be involved in the production, transformation, distribution and use of knowledge to varied purposes (Rullani, 2004), the production increasingly relies on intangible assets as information technology, software and personal competences (Leadbeater, 1999), but also on relational capacities and network relationships (Rullani, 2004).

1.4.1 Knowledge as a dynamic entity

Knowledge is not a static entity stored in a box to be sold and spread (Alvesson, 1993) but, as the reported definition stresses, it is an indefinite, continuously changing, form resulted from the combination of a specific-context both subjective (as experiences, values and judgements) and objective (information) elements. In a dynamic perspective, knowledge results to be a social process, originated from the interactions between the individuals and dependent on their recognition.

Knowledge does not coincide with pure information, even though the terms are often used interchangeable.

Starbuck (1992) suggests that:

> *«knowledge is a stock of expertise, not a flow of information».*

Roberts (2000) reinforces the concept stating that knowledge is more than information:

> *«knowledge implies an awareness or understanding gained through experience, familiarity or learning».*

Miles et al. (1995) combine knowledge and information, defining the former as:

> *«an active process involving the ability to organize information, as well as the results of applying that ability… [its] transfer requires more interactions between the participants than does information transfer».*

The difference between knowledge and information needs to be considered to understand the role of the KIBS. They are part of information processing service involved in the

business of producing and supplying knowledge. KIBS provide information and knowledge to their clients, but they do not merely accumulate or transfer information, they encourage the development of knowledge in their transactions (Toivonen, 2004).

1.4.2 Knowledge as a heterogeneous concept

OECD (1996) recognized different types of knowledge:

- *Know-what*, referring to knowledge about facts;
- *Know-why*, referring to scientific knowledge of principles and law of nature;
- *Know-how,* referring to skills or capability to do something;
- *Know-who*, involving information about who knows what and knows how to do what.

While know-what and know-why involve generic bodies of knowledge, which can be learnt by attending formal lectures and reading books, know-how and know-who concern personal and social competences, progressively developed through learning by doing. They can be encompassed in the knowledge dichotomy proposed by Polanyi (1966), distinguishing between explicit and tacit knowledge, according to the transferability attitude and the mechanisms used for moving across individuals, time and space (Grant, 1996).

- *Explicit knowledge* can be codified in signs, verbal or written form. It can be easily processed, stored and transmitted in a systematic language, but it is difficult to appropriate, given its nature of public good.
- *Tacit knowledge* cannot be formalized because it highly personal, entrenched in the social and cultural context. Tacit knowledge is embodied in the competences, actions and effort undertaken by an individual in a specific context (Nonaka and Nishiguchi, 2001), as well as in the organization itself in the form of procedures, routines, technical systems (Gallouj, 1997). Nonaka (1994) identifies two dimensions of tacit knowledge: the *technical dimension*, comprising the specific context how-how, skills and crafts and *cognitive dimension*, consisting of mental models, paradigms and beliefs determining the individual perception of the world.

Despite their different characteristics, tacit and explicit knowledge are complementary: explicit knowledge shapes the tacit knowledge, which gives a meaning to the former.

The model of organizational knowledge creation developed by Nonaka and Takeuchi stresses the concept that knowledge is created through the interactions between tacit and explicit knowledge (Box 2). Both types of knowledge are critical input and output of

KIBS. Consoli and Hortelano (2009) state that KIBS heavily depend on tacit knowledge embodied in their employees as well as on explicit knowledge accumulated in the organizational system to perform a customized service solution. Moreover, the knowledge intensive service itself consists in a combination of codified scientific and tacit knowledge based on widespread professional experiences. The particular nature of the output makes difficult its standardization (Strambach, 1998).

Box 2 SECI process

Knowledge creation is a continuous, context specific and social process involving interactions among individuals and between individual and environment (Nonaka et al., 2000). This process is based on the complementary relationship between the tacit and explicit knowledge: the dynamic interactions between the two types of knowledge, called conversions in Nonaka and Takeuchi' s terminology, generates new knowledge.
Nonaka and Takeuchi identify the four following modes of knowledge conversion:
Socialisation – from tacit knowledge to tacit knowledge. Individuals (employee-employee, employee-customers, employee- supplier), sharing experience, create and acquire tacit knowledge in the form of mental models, mutual trust and technical know-how through observation, imitation and practice.
Externalisation – from tacit knowledge to explicit knowledge. Tacit knowledge is rationalized and expressed in explicit form, as metaphors, concepts, hypothesis, diagrams and formal models.
Combination – from explicit knowledge to explicit knowledge. Explicit knowledge, collected from various internal and external sources, is combined and processed in a new framework to produce a new context-specific explicit knowledge. Technologies, as database and computerized communication networks, support the process.
Internalisation – from explicit knowledge to tacit knowledge. Explicit knowledge is shared throughout the organization and internalized into individuals' tacit knowledge bases in the form of shared mental models or technical skills through learning by doing.
Socialisation, externalization, combination and internalization form the SECI process, a spiral knowledge creation process: the four modes of conversion generating new knowledge amplify the interactions between tacit and explicit knowledge. Starting from the individuals' tacit knowledge, the organizational knowledge creation process expands moving through different ontological levels - individuals, group, organizational and interorganizational levels - enlarging the spiral.

1.5 KIBS as knowledge processors and producers

KIBS, as relevant agents of the knowledge based economy, contribute to transfer information and create knowledge.
As suggested by Hipp (1999), the knowledge intensity, which characterizes the KIBS, can be defined as:

> *«the ability to receive information from outside the company and to transform this information together with firm specific knowledge into useful services for their customers».*

KIBS emerge to be intermediaries between their clients' knowledge base and the broader

and dispersed knowledge base of the economy offering a problem-solving function to clients (Muller and Doloreux, 2009).

The intermediary function is not a merely adaption of existing knowledge to the specific customers' needs or a linear knowledge transfer from the supplier to the client, but it involves the production and the diffusion of new knowledge. According to Strambach (2001), the knowledge process within KIBS is articulated in three main stages, depicted in Figure 2:

- *acquisition* of available problem-related tacit and explicit *knowledge* through the interactions with the client firm;
- *knowledge recombination*, which consists in combining the knowledge got from the clients' interactions and the existing knowledge in a codified form;
- *knowledge diffusion,* which occurs in the application of this elaborated codified knowledge to the client. The exchange of knowledge products is different from the delivery of a standardized product or service, because it implies uncertainties and information asymmetries, given the specific features of knowledge previously described.
- The whole process is self-reinforcing because as knowledge transfer involves interactions with the clients, it creates new possibilities for fostering the generation of fresh knowledge (Muller and Zenker, 2001).

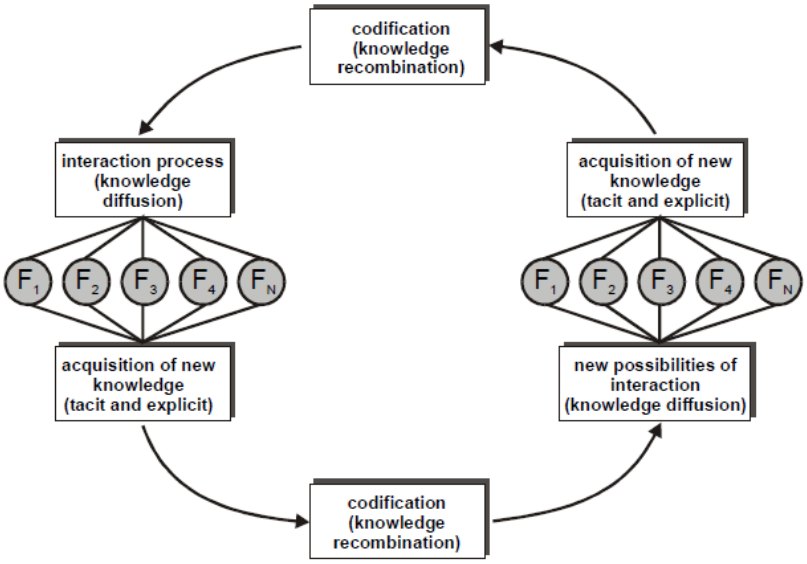
The representation of KIBS as organizations involved in a process of knowledge adaptation and creation through the action of problem solving is consistent with the concept of knowledge creating entity formulated by Nonaka (1994). According to him, an organization is not simply a *machine for processing information*, but it is a *living organism* which generates knowledge trough the interactions with the surrounding environment.

In this perspective, a close relation and communication flow between the KIBS and knowledge users appears to be crucial for the development of the knowledge based solution (Strambach 1998; Hipp, 1999).

The client owns relevant codified knowledge, in form of technology platforms, database and formal reporting documents, and tacit knowledge in terms of awareness to the specific problem to solve: by providing these critical inputs and continuous feedbacks, the clients participate to the service production (Bettercourt et al., 2002). Consequently, the content and quality of the products depend on the professional skills and experience of the KIBS

as well as by the ability of the client to provide appropriate inputs, acquire and integrate the external knowledge into his own organization (Strambach, 1998; Den Hertog, 2000; Bettercourt et al., 2002).

Figure 2 Knowledge production and diffusion



Source: Muller and Zenker (2001), adapted from Strambach (2001)

The active role of clients in the knowledge processing process is emphasised by Gallouj (1997) and reinforced by Bettercourt et al. (2002). According to Gallouj (1997), three elements are involved in a typical KIBS transaction:

- the source of the input knowledge;
- the receiver of the output knowledge;
- the processor of the input knowledge and the (co) producer of the output knowledge.

In this framework, the client is recognised as a source, (co) processor and receiver of knowledge, not a merely passive addressee of the output.

Bettercourt et al. (2002) delineate a co-production management model based on the importance of clients' involvement, defining a set of clients' behaviours (communication openness, shared problem solving, tolerance, accommodation, advocacy, involvement in project governance, and personal dedication) required to make effective the knowledge exchange and identifying the management practices (selection, training, education, socialization and performance valuation) necessary to enhance the relationship.

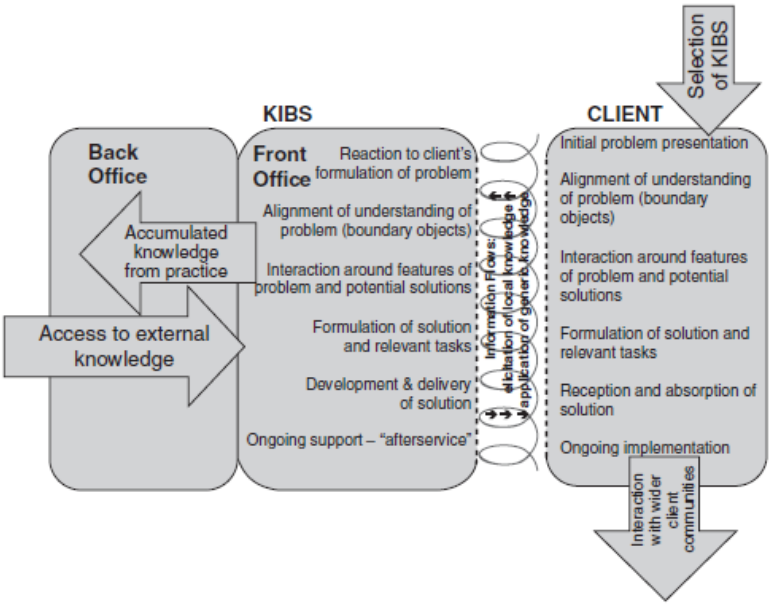
Going deeper to the KIBS - clients interactions occurring during the knowledge pro-

cessing process, Den Hertog (2000), applying the Nonaka & Takeuchi' model of organisational knowledge creation to KIBS, finds out that:

- tacit forms of knowledge flows are important at least as the explicit, codified forms of knowledge exchange. This finding is consistent with the results of a research promoted by Landry et al. (2012), revealing that 26.1% of knowledge exchanges involve almost only or mainly tacit knowledge, 19.2% mainly codified knowledge and 54.7% includes a mix of tacit and codified knowledge.
- KIBS do not only enrich the client knowledge base through the confrontation with their knowledge base, but generate and strengthen processes of knowledge conversion within the clients. A conversion from tacit to explicit knowledge is required for the clients to provide KIBS with the necessary inputs for developing a customized knowledge product as well as to integrate the acquired knowledge leading to the creation of new internal routines.

Summarizing, Miles (2012) represents the KIBS-client relationship (Figure 3) as a helix of interactions between supplier and client involving a variety of information and knowledge flows occurring at different stage of the activity of consultancy.

Figure 3 The KIBS-client relationship



Source: Miles, 2012

The knowledge flows as well as the benefits of the relationships are reciprocal: the acquisition of knowledge from their clients enables and improves the development of a customized solution for their clients, but also boost KIBS' knowledge bases. A larger knowledge base implies greater capabilities in integrating the knowledge into their organizations (Le Bars et al., 1998). This improve the organization's ability to absorb new knowledge and to innovate (Strambach, 2001).

1.6 Innovation

Innovation is defined by Nonaka (1994) as:

> *«process in which the organization creates and defines problems and then actively develops new knowledge to solve them».*

Knowledge creation and knowledge transfer, involved in the process of problem solving, lead to innovation. KIBS, seen as knowledge processor and producers interacting with a variety of stakeholders, are part of the innovation system. Within it, they play a double role (Muller and Zenker, 2000):

- they act as external knowledge source, supporting the innovation in client firms
- they promote their own innovations.

In other words, Strambach (2001) distinguished the KIBS' contribution to innovation between:

- the direct effects on the supply side, referring to the introduction of innovative activities (product innovations, process innovations and organizational innovations);
- the indirect effects on the demand side, including the functions undertaken by the KIBS to support the innovation of their clients (transfer of knowledge, integration of different stocks of knowledge, adaptation to existing knowledge to clients' specific needs and production of new knowledge).

1.6.1 KIBS as supporter of innovation

Different agents take part to the innovation process: KIBS, given the flexibility in the ways in which they operate and interact, contribute to bridge the gap in terms of missing resources and capabilities among the various agents.

Bressant and Rush (1995) identify the following intermediary functions which KIBS can

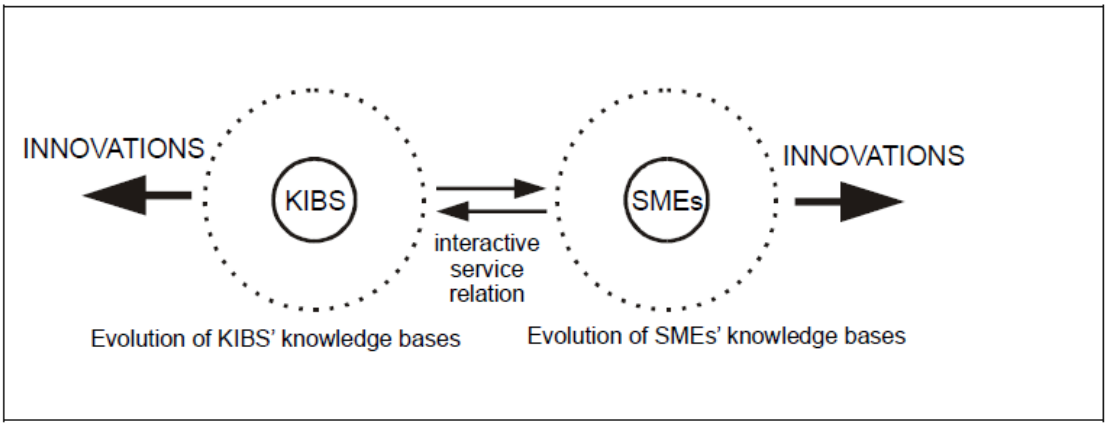
implement to foster the client's innovation process:

- the direct transfer of expert knowledge in order to solve the client's problems;
- the role of experience sharing, spreading experiences and ideas through different contexts;
- the brokering role, linking sources and users across a variety of specialist services;
- the diagnostic function, helping clients to identify and delineate their innovation needs;
- the role of benchmarking, proving example of the best practices;
- the change agency, supporting an organizational development from an external perspective.

To provide a more generalized framework, Miles et al. (1995) classify KIBS as *facilitators*, *carriers* or *source* of innovation according to their role in supporting innovation.
The term 'facilitator' refers to the activity of sustaining the innovation process, without originating the innovation neither transferring it from a client firm. The provision of expert knowledge (the traditional consultancy activity) is not the only facilitating activity. Gallouj (1997), in the knowledge processing framework, determine a variety of competences (externalisation, internalisation, generalisation, localisation, association and dissociation) provided by KIBS for processing information and knowledge, contributing to facilitate the innovation process in the client firm.
A KIBS is a carrier of innovation when it transfers existing innovation from an industry to another: OECD has recognized KIBS as the typical vehicle for innovation diffusion from large to small and medium size firms (Toivonen, 2004).
KIBS is considered a source of innovation when it originates and develop innovation in the client firms. Innovation is the result of an intensive interaction and learning process between KIBS and their clients (Strambach, 1998) These interactions generate new knowledge and shape the innovation features, in product or process (Muller and Zenker, 2001; Den Hertog, 2000) As suggested by study conducted by Muller and Zenker (2001), on one hand, KIBS act as catalyst of innovation capabilities of client firm, on the other hand, KIBS take advantage from these interactions increasing their knowledge base and, consequently, their ability to innovate.
The authors support the existence of a virtuous cycle associating KIBS and client firms, SMEs, (Figure 4) through knowledge generation, procession and diffusion, and affecting

their both innovation capacities.

Figure 4 The virtuous cycle associating KIBS and their clients (SMEs)



Source: Muller and Zenker, 2000

1.6.2 KIBS as innovators

KIBS do not only foster the innovation capacities of their clients, but they are innovators by themselves.

In literature, different KIBS studies offer empirical evidence of the innovativeness of these organizations. Tether and Hipp (2002) investigating on the different patterns of innovation and source of competitiveness among the German firms find out that KIBS have a tendency to spend more in innovation per employee than any other service firms, revealing the KIBS' intense commitment to innovation. Moreover, focusing on the innovation activities, KIBS are mainly involved in the service product innovation, given that the larger part of their income derives form customized services.

The study made by Czarnitzki and Spielkamp (2003) exploring on the role of the business service in Germany reveals that computer service firms, technical service firms and consultancy firms have introduced a greater percentage of new or significantly improved products, services or processes than the other business service companies. KIBS appear as active contributors to the innovation process. These innovation activities, regarding the product, the service or the production process result from investment in R&D, market investigation and the cooperation with strategic partners. The study shows that KIBS are more likely to cooperate in an innovation projects than any other less knowledge intensive firms. The type of partner depends on the specific business service: the computer service firms prefer to be involved with competitors and universities, the technical services are

more related with customers, instead the consultancy mainly cooperate with competitors or other consultancy firms. These findings are consistent with the Eurostat results for KIBS innovative performances, based on CIS2004 database and reported in Gotsch et al., 2011. They confirm a significant gap with manufacturing in share of innovative firms, innovation expenditure as percentage of turnover and engagement in cooperation (Table 2).

Table 2 KIBS industry innovation performance

INNOVATION INDICATORS	KIBS AVG*	MANF GAP**
Share of innovative firms	50.04	23.89
Firms innovation expenditure (%turnover)	6.36	60.10
Firms engaged in any type of cooperation	38.83	26.39

Source: Gotsch et al., 2011 based on CIS2004 database of Eurostat
* KIBS Average value of NACE divisions
** Manufacturing Gap: Gap value between the corresponding KIBS average and manufacturing industry value

Freel (2006) provides additional empirical evidence to support that KIBS innovate more than the manufacturing firm and examines the differences in innovation features between t-KIB and p-KIBS, intended as previously defined. Innovativeness in t-KIBS is strongly associated with the human intensity capital, consisting in high qualified technical employee, R&D expenditure and cooperation with suppliers and university, while the lower technology complexity characterizing the p-KIBS makes the clients and suppliers of specialized equipment the major contributors to their innovation activities.

Focusing on the innovation activities, KIBS firms are involved in different types of innovation, each one having as own determinants specific knowledge assets, which are not independent one another (Den Hertog, 2000). Amara et al. (2009) identify six different types of innovations two technological (product and process innovation) and four non-technological (delivery, strategic, managerial and marketing innovations) and investigate on the heterogeneities in their determinants, considering a variety of explanatory variables (the variety of knowledge sources, types of knowledge exchanged and knowledge management strategies). The findings suggest the existence of complementarities between the different forms of innovations, which are characterized as followed:

- *product innovations* are positively associated with R&D activities, information sources, and they occur more likely in firm establishing very strong ties with the important customers;

- *process innovations* rely on R&D activities, they are developed by firm exchanging mainly mixed knowledge with their important clients;
- *delivery innovations* depend on R&D activities, market sources, research sources and they arise in firm creating strong ties with the important costumers;
- *strategic innovations* are determined by R&D activities, information sources and they are typical to firms having strong ties with the important costumers;
- *managerial innovations* are explained by R&D activities, market sources, information sources, research sources;
- *marketing innovations* are positively related with R&D activities, market sources, information sources, research sources and they are exploited by firm exchanging mainly tacit knowledge with their important clients.

The study shows that the innovation capacity depends on the available knowledge assets and on the firms' competences to combine them into a unique pattern of innovation, contributing to maintain the competitive advantage. This view is consistent with findings achieved by Tseng et al. (2011) in their study on Taiwan Intellectual Capital design companies. They argue that KIBS accumulating knowledge from external interactions improves their knowledge absorptive capacity, consisting in a combination of knowledge input and spillover effects enhancing the corporate innovation performances.

1.7 Conclusion

The chapter shows the actual relevant role played by the KIBS in producing and transferring knowledge resources in the innovation system. Nowadays, KIBS are not only themselves highly innovative, but they act as facilitator, carrier or source for the clients' innovation process. It would be interesting to provide an insight on the future KIBS development.

In this regard, Gotsch et al. (2011) develop four scenarios (Figure 5), resulting from the combination of two drivers: the business environment (stable or dynamic) and the degree of knowledge base's codification (tacit or codified):

- *Customized delivery scenario* – high degree of tacitness and stable environment – highlights the KIBS growth potentiality in the innovation process of their clients, given their professional expertise, the cost advantages and the general increasing trends toward outsourcing.

- *Creativity & innovation scenario* – high degree of tacitness and a dynamic environment – points out as determinants for the KIBS progress the increase in competences and skills of the qualified workforce and the cooperation opportunities enabled by the fluid and interactive environment.
- *R&D scenario* – low degree of tacitness and dynamic environment – suggests positive growth prospects from the technology side, because using ICT leads to intensify the service content codification and the process automatization, and from the environmental side, because a greater openness and a deeper user involvement permit to enlarge the KIBS knowledge bases and consequently their ability to innovate.
- *Automated delivery scenario* – low degree of tacitness and stable environment – stresses the KIBS growth opportunities resulting from the knowledge codification and automated delivery of services, enabled by a more pervasive use of ICT tools and leading to significant reduction in costs through the exploitation of economies of scale and scope.

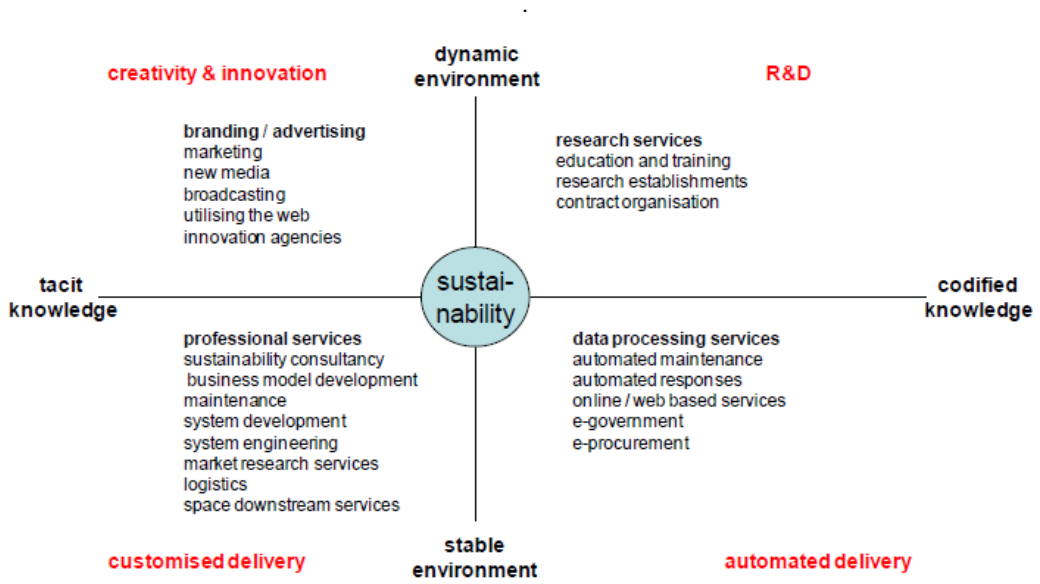
Given the heterogeneity of KIBS, each scenarios may represent the main innovation mode of a specific KIBS sectors (Figure 5):

- the customised delivery scenario suits to the professional services;
- the creativity&innovation scenario is associated to the branding and advertising services;
- the R&D scenario fits to the research services;
- automated delivery scenario tallies with the data processing services.

Considering the variables used by Gotsch et al. (2011) in defining the different scenarios, in this chapter I focus on the KIBS operating environment, stressing its turbulence and uncertainty induced by the introduction of the new digital technologies, while in the third chapter I concentrate on the nature of knowledge, representing the managerial implications for a particular subsystem of the KIBS, the PSFs.

The second chapter is dedicated to the definition of the PSFs and their distinctive features.

Figure 5 The sector scenarios



Source: Gotsch et al., 2011

2. CHAPTER

WHAT MAKES PSFS DIFFERENT

2.1 Introduction

> Il mondo delle professioni rappresenta il sistema nervoso centrale del nostro Paese, suoi gangli vitali, e gli organismi istituzionali di controllo e coordinamento, Ordini e Collegi professionali, possono svolgere un preziosissimo ruolo di guida e stimolo dell'innovazione.

This is the opening sentence of the report made by CRESME, a professional centre of economic and social researches, about the professional systems in Italy in 2010. It stresses the relevant role of the professions in the economic and social environment, as partner of the businesses growth and supporter of the innovation process in Italy.

In 2008, the Italian regulated professions deal with a business volume of 196 billion of euro, corresponding to the 12.5% of the GDP, and generate a value added of 80 billion of euro, representing the GDP. In terms of employment dimension, individuals recognized in the formal occupational registries amount to more than 2 million, while adding the workers in the related industries, the sectorial employment reach approximately 4 million, counting for the 16% of the total national employment. After the economic and financial crisis, Chierchia (2014) evidences the continuous increase of professionals employed in PSFs, presenting a positive balance of 9 thousand of job opportunities.

Within the KIBS sector, PSFs form a distinct subsector including the classic PSFs – the traditional regulated professions – and the neo PSFs – the other consultancy activities – adopting the terminology introduced by von Nordenflycht (2010). While each category presents its idiosyncratic features, PSFs have commonalities in terms of input – highly qualified workers – and output – a complex knowledge solution – and organizational

structures, spanning from the traditional professional partnership to the managed professional business (MPB) and emergent global professional network (GPN) according to the operating market environment (Brock, 2006). While smaller firms prefer flatter organizations based on clan mechanisms, the larger firms, especially the one less reliant to a professionalized workforce, implement more hierarchical, managerial structures, provided with large support staff and technostructure.

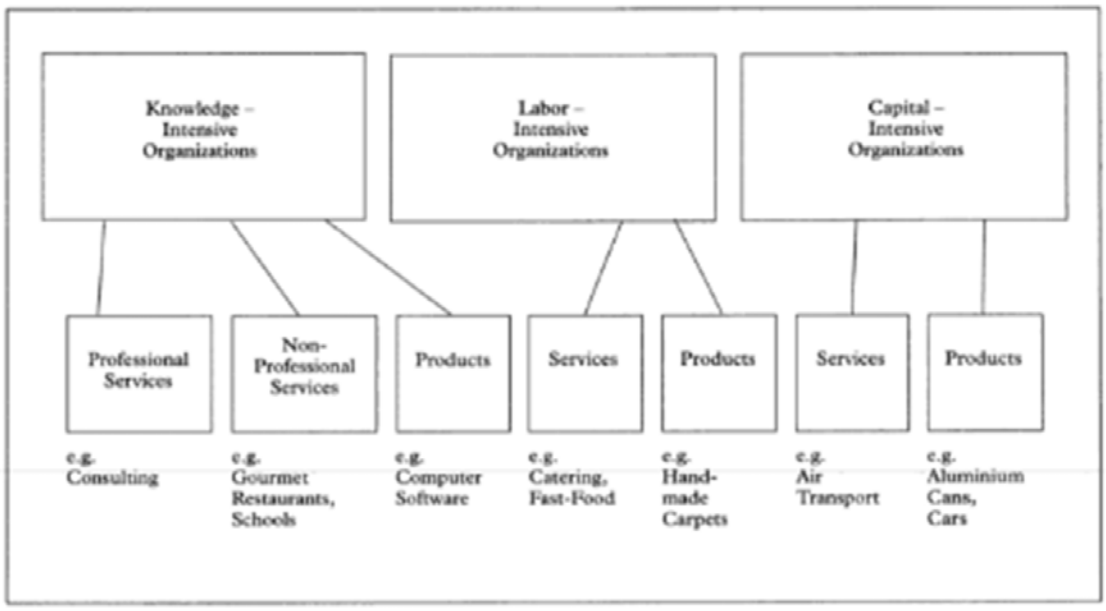
This chapter is organized as follows. In the first paragraph, I focus my attention on the definition of the PSF sector, delineating the common characteristics in terms of critical resources, work content and product. In the second, the third and the fourth paragraphs, I singularly deeply explain the assets – human, social and organizational capital – and capabilities – organizational ambidexterity and innovation – creating value for the PSFs. While in the last paragraph, I investigate on the meaning of professions for explaining the Italian dual system composition.

2.2 Professional Service Firms

Professional Service Firm (PSF) are knowledge intensive organizations (Figure 6):

> *«PSF is an organisation that trades mainly on the knowledge of its human capital, that is its employees and the producer-owners, to develop and deliver intangible solutions to client problems» (Morris and Empson, 1998).*

Figure 6 Type of organizations



Source: Løwendahl (2005)

The definition clearly identifies the expert knowledge embedded in the high qualified workforce as critical input and strategic resource (Starbuck, 1992; Lowendahl et al., 2001) and the output consisting in intangible, customized client services based on the professional knowledge (Maister, 1993; Løwendahl, 2005; Greenwood et al., 2005; Hitt et al., 2001).

PSF sector includes different organizations involved in a variety of activities: law, civil engineering, architecture, audit, accounting, consulting, advertising, marketing, financial investment, insurance brokerage and software production (Maister, 1993, Fosstenløkken et al., 2003).

Despite the heterogeneity within the sector, PSFs have common unique characteristics which differentiate them from the other service firms. They tend to be project-oriented, generally facing short deadline and steady demand and involving accurate analyses and problem solving around the clients' needs (Amonini et al. 2010; Stumpf et al., 2002, Riemer and Scifleet, 2012).

The work content is mainly theoretical and intellectual resulting in new knowledge in form of ideas and concepts or formalized in reports or written documents. Developing an ad hoc knowledge solution requires an intensive collaboration between the employees and the clients (Riemer and Scifleet, 2012). The product is little standardised and characterized by high level of complexity and customization. Product complexity stands for "*the number and intricacy of steps needed to generate the service*" instead product customization refers "*to the degree of service that is tailored to the individual customer*" (Guzak and Rasheed 2014). Løwendahl et al. (2001) provide a map of professional services as a continuum between low to high degree of customization (Figure 7).

The employees are highly skilled, educated in a standardized body of knowledge and adherent to norms of code (Løwendahl et al., 2001). They represent valuable assets because they embody, develop, transform the knowledge encoded in the output and they create and maintain the relationship with the clients (Greenwood et al., 2005).

As the clients depend on the PSF, given the asymmetry of expertise, PSF relies on its professional staff, which are involved in three basic types of business, according to Kaiser and Ringlstetter (2011):

- consulting business, consisting in defining problems and developing new client specific solutions;

- provision of additional personnel capacities to solve complex problem;
- brokerage, consisting in being the mediator between two firms.

The paradox is that PSFs do not really own the main source of their competitive advantage, residing in the human capital: they try to link the professionals to the firm through partnership benefits and associated non-compete agreements (Teece, 2003). When a professional expert feels to not be rewarded properly, he may decide to leave the firm, reducing the firm's knowledge base and consequently its performances (Baker et al., 1998).

Figure 7 A broad mapping of the customization of the professional services

Degree of customization	*Professional services*
Lower	Information, market analyses, reports
↕	Certification, quality assurance, audits
↕	Expertise, advice
↕	Training
↕	Solutions to problems
↕	Innovation, new ideas, creative design
↕	Assistance in implementation
↕	Mediation, negotiator, 'middle man role'
Higher	Stand in, management for hire, spokesperson 'on behalf of'…

Source: Løwendahl et al. (2001)

2.3 Intellectual capital in PSF

The human capital consists in the knowledge and skills held by professionals and exploited in the production and the delivery of the professional services.
In literature, Becker (1964) differentiate this capital in two subcategories:

- *industry-specific* referring to complex knowledge regarding the industry routines and processes acquired through professional education and industry experience;
- *firm-specific* referring to the knowledge about the firm specific procedures and practises, developed through training programs and learning by doing.

The firm specific human capital is idiosyncratic, difficult to transfer and valuable for the firm in which it is developed. A lower firm's specificity characterized the industry specific human capital: any movements of professionals from a firm to another within the

same industry do not reduce its value (Pennings et al., 1998).

Going deeper on the resources held at individual level, Løwendahl et al. (2001) distinguish three types of knowledge:

- information-based knowledge, referring to explicit, problem-related knowledge;
- experience-based knowledge, referring to tacit knowledge acquired through a continuous deeper understanding of a problem;
- personal knowledge, referring to the individual intrinsic aptitudes and talents.

Human capital results to include both objective, codified knowledge and subjective, tacit knowledge in form of expertise and personal aptitudes. Task related knowledge contributes to construct the framework for analysing and evaluating the problem complexity, personal creativity is determinant for the generation of ideas at the basis for the formulation of the problem solution. Kaiser and Ringlstetter (2011) refer to them, task related knowledge and creativity, as components of technical know-how, which is critical in the PSF problem solving function. Technical knowledge is not enough to produce and deliver valuable outputs, a client knowledge on key staff members, on the whole organizations and on the operating sector needs to better understand the client features and to improve their relations (Kaiser and Ringlstetter, 2011). The success of the economic transactions depends on the professional expertise encoded in the service produced as well on the connections created with the clients (Maister, 1993). Professionals build and maintain relationships with potential and actual clients, developing the social capital (Nahapiet and Ghoshal, 1998).

The social capital refers to knowledge resources rooted within, accessible through and derived from relationship between individuals or groups within the organization or outside to firm, as client, suppliers, external partners (Youndt et al. 2004). It develops over the time through interactions though individuals and groups, without following defined norms and rigid procedures: social capital represents a flexible channel for getting, sharing and transferring information and knowledge (Subramaniam and Youndt, 2005).

Investigating the nature of the social capital, Nahapiet and Ghoshal (1998) distinguish three separate, but strongly interconnected dimensions:

- the *structural* dimension, referring to the formal configuration of network and to the types of bonds among the individuals involved;

- the *relational* dimension, focus on those assets originated and spread through the personal relationships, as the establishment of trust, shared norms and obligations and mutual identification enabling some actions and constraining others;
- the *cognitive* dimension, including shared codes, languages and narratives facilitating the communications between the parties.

Differently from the human capital residing on the professional as individual, who has an exclusive right on it, the social capital is inherent in the relations among individuals, which share the ownership of the knowledge resources involved (Burt, 1992). From the perspective of the PSF, both capitals are not appropriable by the firms, because they are embodied in the individuals forming the firms (Pennings et al., 1998).

The study conducted by Pennings et al. (1998) on Dutch accounting firms over 110 years (from 1880 to 1990), investigate on the impact of human and social capital on the firms' performances. They found that those capitals, given their specificity and non-appropriability, reduce the dissolutions of PSF and constitute critical sources of competitive, particularly when the capital is firm-specific or held by the partners. A highest human capital turns into higher degree of quality services and greater ability to keep and catch new clients, (Pennings et al., 1998) fostering the social capital, but also increasing the costs (Hitt et al., 2001). Hitt et al. (2001) found out the existence of a U-shaped relationship between human capital and firm performance: initially, the investments for hiring the most qualified workforce and training the new partners overcome the benefits. Then, subsequent investments bring more benefits, in term of efficiencies and synergies developed among human assets, which contribute to deliver valuable service to the clients.

Moving to the organization level, another source of competitive advantage is provided by the organizational capital. Organizational capital consists in the institutionalized, codified knowledge entrenched in firm's database, routines, processes, systems, culture and value (Youndt et al., 2004; Fu et al., 2016). In contrast with the flexibility characterizing the social capital, the inherent knowledge is structured within a set of parameters, stored and employ following predetermined practices (Brown and Duguid, 1991). The contextualized knowledge forming the organizational capital results from social interactions between the professionals: the individual knowledge created through a socialization process is converted into codified knowledge, which are stored, integrated in the organizational framework and transferred among the organization (Nonaka, 1994, Fu et al., 2016).

Organizational capital represents the knowledge owned and preserved within the organization. As reported by Fu et al. (2016), within the PSF, this capital supports the use of efficient work practices and enables the knowledge generation, sharing, combination and transfer by providing access to existing knowledge.

In the professional service context, human, social and organizational capital coexist forming a unique firm's profile of intellectual capital. Specific types of investments support the growth of each component of the intellectual capital (Subramaniam and Youndt, 2005):

- the human capital increases by attracting, training and retaining professional with high knowledge and expertise;
- the social capital requires the presence of norms and structures enabling the connections and facilitating communication and cooperation within and across organizations;
- the organizational capital needs the implementation and the development of repositories to accumulate knowledge and structured repetitive procedures to preserve it.

As Youndt et al. (2004) find out in their study, the investments affect not only a type of capital:

- HRM investments result to be associated with the generation of human capital, but also of the social capital, facilitating the interactions and flows of knowledge between the professionals with the training programs;
- investing in IT fosters not only the formal structure supporting the development of the organizational capital, but also enables the interactions and knowledge sharing feeding the social capital.

Even though 70% of the organizations included in the research sample focus on the development of a component of the intellectual capital, human, social and organizational capital should not be considered as separate elements. In literature, organizational learning theory and knowledge management studies support the existence of strong interdependences in creation and development of the intellectual capital components. Individual knowledge is at the basis of organizational knowledge (Nonaka, 1994). Individual knowledge, forming and resulting from the human capital, is shared and transferred within the network of relationships (social capital). The created knowledge is converted into codified knowledge (organizational capital) to be accessible and available for the

whole organization (Youndt et al., 2004; Subramaniam and Youndt., 2005).
In this regard, the study reveals that the high overall intellectual capital profiles perform better not only than the low overall profiles, but also to the unidimensional ones: these findings suggest to PSFs the importance to formulate a complex and complete strategy focus not only on improving the human, the social and the organizational capital, but also exploiting their synergies in order to increase the whole intellectual capital and enhance the organizational performances.

2.4 Renewal of knowledge

PSFs are built on knowledge resources embedded in the professional staff and codified in the organizational systems. These resources are developed, combined and adapted to produce customized solutions for the clients. Given their function of problem solving, PSFs need to create, foster and apply new knowledge (Fu, 2015). The process of acquisition, distribution and combination of new knowledge from outside and inside the organization is referred as organizational learning (Kang and Snell 2009). Crossan et al. (1999) defined the organizational ability to learn as the principal means for achieving the renewal of the firm (Box 3).

Box 3 The 4I framework of organizational learning

Crossan et. al (1999) formulate a framework for explaining the organizational ability to learn. It included four sub-processes - intuiting, interpreting, integrating, and institutionalizing – occurring at three different levels - individual, group, and organization. Organizational learning is a dynamic process triggered by individual intuition. The intuiting process consists in recognising past patterns, making new connections and discerning emergent possibilities. The individual idea, usually expressed through images and metaphors, need to be defined to be absorbed by the other individual. The development and explanation of the idea (interpreting process) occur through intense conversations and interactions among individual. Dialogues facilitate the development of shared understanding and the implementation of a mechanism of mutual adjustment which coordinate the actions undertaken by individuals within a group (integrating process). If the resulting coordinated action is recurring, it is formalized and routinized in the organizational structure (the institutionalizing process).

Renewal involves the exploration and creation of new knowledge and the exploitation of the existing knowledge (March, 1991). Exploration and exploitation are the two approaches to learning recognized in most studies of organizational learning, based on the March's (1991) paper:

- *Exploration* involves the search and investigation of new learning opportunities outside the existing knowledge base (Kang and Snell, 2009; Swart and Kinnie, 2010),

and implies a change to new technical competences, market knowhow or external relationships (Lavie et al., 2010).

- *Exploitation* entails the refinement of the current knowledge base (Kang and Snell, 2009) by leveraging the existing capabilities and expertise (Lavie et al., 2010).

In the professional service context, exploration and exploitation are different from the other firms, because they are entrenched on the everyday professional activities to develop customized solutions for the clients (Smets et al., 2012). PSFs explore new knowledge constructing relationships with new partners and posing unfamiliar demands, while they exploit current knowledge by deepening the relationships with existing partners presenting ordinary demand (Beckman et al., 2004): they are involved in an ambidextrous learning.

Organizational ambidexterity refers to:

> *«the organization's ability to simultaneously explore and exploit their internal and external resources to meet the today's business needs as well as being adaptive to future market changes» (Fu et al., 2016).*

Swart and Kinnie (2010) identify three types of ambidextrous learning, according to two dimensions (space and time): structural, temporal and bilateral.

Structural learning consists in creating separate organizational units engaged with explorative or exploiting learning. Most consulting, auditing and law firms are organized in practise group according the specific expertise, based on client/marked served for the former and on functional knowledge on the others.

Temporal learning involves the use of different learning approaches on separate stages of a project: PSF can exploit existing knowledge of a sector, region or practice group to explore, later, highly customized solutions for their clients.

Bilateral learning consists in combining exploitive and explorative learning within a single organizational unit at the same time. A professional change his learning orientation moving across different clients' assignments change.

Successful organizational ambidexterity requires the simultaneous contribution of human, social and organizational capital (Kang and Snell, 2009). Professionals provide their knowledge, expertise and commitment to acquire new knowledge and exploiting the ex-

isting resources (Fu et al., 2016). Social capital supplies the relational context for leveraging the current knowledge base and varies to expand the firm's knowledge base (Beckman et al., 2004). Organizational capital facilitates the access to existing knowledge improving the efficiency in the delivery process and accelerate the creative process for innovative solutions by transferring knowhow within the organizational structure (Fu et al., 2016).

Going a step further, Swart and Kinnie (2010) show the relevant role played by the HRM in developing the critical assets determinant for the organizational learning process. To deal with the different types of organizational ambidexterity (structural, temporal and bilateral), they respectively identified three HRM systems: configurational, developmental and strategic.

The *configurational system* involves the development of distinct employment approaches for the separate organizational units, according the learning orientations. In exploratory activities requiring complex expertise and creativity, PSFs implement HR practices fostering the growth, the autonomy and the decision-making capacity of the employees. In exploitative activities, PSFs prefer to promote training programs to speed up some critical processes.

The *developmental system* consists in designing HR practices gradually enhancing the employees' knowledge to enable them to deal with the different learning approaches. During his professional career, an employee starts with exploitative activities, then, move to more complex exploratory ones.

The *strategic system* implies the adoption of HR practices promoting the attraction, the development and the retention of valuable and flexible workforce, which easily adapt to different clients' needs, moving from a learning approach to another.

Dealing simultaneously with exploration and exploitation requires huge investments and the commitment of the entire organization, but it positively affects the firm's competitiveness. PSFs gain competitive advantage from organizational ambidexterity (Swart and Kinnie, 2010), because their clients ask for innovative solutions provided efficiently (Fu et al., 2016). The exploitation and effective re-use of existing knowledge combined with the exploration and acquisition of knowledge from the external environment increase the PSF's intellectual capital allowing to produce and deliver in time ad hoc knowledge services for their clients more efficiently and effectively than their competitors (Hogan et

al., 2011). Fu et al.'s (2016) research confirms the existence of a positive relationship between organizational ambidexterity and firm performances in the professional service context, stressing the importance of both exploitative and exploratory activities for maintaining success in a dynamic environment.

2.5 Innovation in PSFs

Nowadays, technology development, regulatory changes and the pressure of more value oriented clients increase the competition within the professional service context (Ross, 2016). Innovation results to be critical for PSFs to maintain their competitiveness in the highly competitive markets (Hogan et al, 2011) enhancing the value of their supply (Fu, 2015).

Hogan et al. (2011) define the innovation capability within the professional service sector as:

> *«the firm's ability, relative to its competitors, to apply the collective knowledge, skills, and resources to innovation activities relating to new products, processes, services, or management, marketing or work organization systems, in order to create added value for the firm or its stakeholders».*

As emphasised by the definition, the professional innovative initiatives concern not only with the development of highly innovative customized solutions (client dimension), but also the use of original approaches to attract new clients and to retain the current ones (marketing dimension) and the adoption of new integrated systems and software to monitor the changing environment (technology dimension).

In general term, innovation in PSFs occurs continuously through the creation of new knowledge or the recombination of existing knowledge to respond to the client demands (Smets et al., 2012; Fu et al., 2016). Differently than in other firms, it is intrinsically rooted on the ordinary professional work and it heavily depends on the professionals' expertise, skills and involvement in the client's relationship (Smets et al., 2012).

The role of professionals in the innovation process is analysed by Drazin (1990), according to two perspectives: structural-functional perspective and the radical-structural perspective.

The *structural functionalism* assumes that the professionals are a homogeneous group, sharing the same values, believes and interests, contributing to the achievement of social

goals by providing ad hoc knowledge services to their clients. Innovations result from the adaptation of the professional services to the client specific characteristics by exchanging knowledge and combining new ideas.

The *radical-structural perspective* refers to the professionals are a conglomerate of communities involved in their area of expertise (Anand et al., 2007), principally motivated by personal interests, as the acquisition of a status and control over a specific knowledge domain. Innovations are political acts, originated from social interactions and negotiations between professionals, willing to strengthen their reputation and satisfy their career ambitions (Anand et al., 2007), and their clients, providing the legitimacy needed for the new services (Gardner et al., 2008). Affecting the professional activities and authority, innovations are used as a mean to increase or maintain the power over an area of expertise.

Despite the different assumptions about the structure and the role of the professionals in the economic environment, both perspectives highlight the professionals' critical contributions in the PSF's innovation process. Consequently, the organizational policies to attract, recruit and develop the workforce during its professional career result to strongly influence the organizational innovative capacity (Fu, 2013). Smets et al. (2012) show how changes in the career model imply variations in the organizational model – incentive schemes, leverage model, team composition and fee billing arrangements. These organizational changes enhance the firm's innovative capacity when they required increased innovative activity and motivate and enable senior and junior members to follow innovative opportunities.

Going deeper on the professional innovation process, Nikolova (2012) investigates on the role of the clients. Consistently with the architecture created by Drazin (1990), she identifies two perspectives of analysis: the functional view rooted on the structural functionalism and the constructive view based on the radicalism.

According to the *functionalism*, clients represent relevant sources of novel ideas for the innovation process: periodically interacting with the professionals, they provide their experiences and knowledge to the project development and stimulate the experts with questions and suggestions to better satisfy their needs (Fosstenløkken et al., 2003). Moreover, as already mentioned in the first chapter, they might be more actively involved in the problem-solving process as service co-producers (Greenwood and Lachman, 1996; Bet-

tencourt et al., 2002). The development of the innovative solutions is the result of a strategic and collaborative process depending on the clients' quality and the skills, not merely on the professional expertise. Consequently, in order to manage the innovation process, PSFs need to evaluate and select the right clients and to commit to establish an enduring, trusting relationship, involving frequent interactions, socialization and training practices to foster the clients' innovative behaviours.

Beside the ideal functionalism, the *constructive perspective*, considering the complex, social and political nature of the innovation process, depicts clients as self-interested political actor, actively or passively, involved in the innovation process, supporting or resisting to innovations, according to their interests. Therefore, the innovation process is the result of the power dynamics of client-professional interactions (Nikolova and Devinney, 2009).

Combining the literature analyses, what emerges is that both professionals and clients are critical sources for the knowledge based innovation process in PSFs. Anand et al. (2007), examining the creation process of a new practise area in management consulting firms, find a third variable – hierarchy – as origin of three pathways leading to successful results:

- the *expertise-based pathway* originated from the new emergent knowledge developed by a group of professional;
- the *turf-based pathway* occurring when innovative knowledge generates from interactions with the client marketplace.
- the *support-based pathway* enacted when new knowledge results from firm's plans, typically when the leader designates an individual to create a new practice area.

Investing on the dynamics of the knowledge based innovation process, the authors argue that it involves the combination of four generative elements:

- socialized agency;
- differentiated expertise;
- defensible turf;
- organizational support.

Socialized agency, in term of the consultant's desire to advance on his career path, act as catalyst for the organizational innovation. Consulting firms require to develop differentiated bodies of professional knowledge (differentiated expertise), enlarging the existing

practices and the market domain of clients, and to construct the territorial boundaries and legitimacy of the practice area in the marketplace (defensible turf).

Gardner et al. (2008) analyse the innovation diversification and the legitimacy issues related to the creation of new practice areas in PSFs. They distinguish between radical and incremental diversification according to the degree to which the new practise areas are differentiate from the dominant practice area, and focus on two types of legitimacy: cognitive, concerning to the clear structuring of new practice areas, and socio-political, referring to the stakeholders' endorsement on the new business. Their study on consulting and law firms reveals that:

- *radical diversification* acquires cognitive legitimacy from external sources (as show that new knowledge has already been accepted internally, apply new or divergent client need as a basis for defining new practice, develop client facing publicity) and socio-political legitimacy from internal sources (as use political means to gain others' cooperation, utilize expertise to create boundaries, show that new practice conforms to rules of the firm, emphasized benefits for the firms);
- *incremental diversification* requires internal sources (as extend existing frameworks, generate internal marketing and behave as if new practice is a reality within the firm) to develop cognitive legitimacy and external sources (build economic arguments supporting value of new practice, use rhetoric of clients to build belief that new practice will work out) to support socio-political legitimacy.

In addition, the authors state that consulting firms need organizational support in form of financial resources, skilled personnel and senior partners' sponsorship to successfully conclude the innovation process. In literature, a stream of research on innovation in PSFs stresses the importance of organizational elements to foster the firm's innovation capabilities. Subramaniam and Youndt (2005) find a positive relation between the organizational capital and the firms' innovative capacity. Fu et al. (2016) report that the organizational capital enhance innovation by helping to develop, accumulate and transfer knowledge within the organization. Morris (2001) states that organizational routines enable the professionals to generate new ideas for the project. Fu (2015) shows that relational routines and coordination enable the knowledge management capability in PSFs which enhance the ability to develop and implement innovative solutions for the clients. These findings lead to conclude that knowledge codification practices do not limit but

foster innovation: the standardization of skills and behaviours enable the professionals to learn from earlier experiences, avoiding to repeat mistakes (Levitt and March, 1988), to share and reuse the know-how to develop new service or deal with new clients (Morris and Empson, 1998).

2.6 Professions

The definition of PSFs revolves around the term *professions*. Consequently, the investigation of the meaning of professions is important to grasp the particularities of the PSFs. On one hand, Fosstenløkken et al. (2003) directly refer to *professions*, in defining PSFs:

> *«PSFs are organizations where the majority of the employees must be members of a profession».*

On the other hand, Brock (2006) introduced the *professionalized occupations*:

> *«[PSFs are] organizations primarily sustaining professionalized occupations».*

In literature, the sociologists provide various conceptualizations of professions, according to different theoretical perspectives (Brante, 1988; Saks, 2012).
According to the model trait focusing on the identification of the unique features of professions, professions are occupations based on technical knowledge and expertise, acquired through a formal academic education and continuous training, and adherent to a set of professional norms, regulating the internal and external relationships (Wilensky, 1964; Millerson, 1964; Hall, 1968).
Adopting a functionalist model emphasising the functional relationship between the professions and the society, professions are occupations concerning with the application of knowledge and expertise to societal problems, contributing to the welfare of the whole society (Parsons, 1954; Goode, 1957).
Following the neo-weberian approach, focusing on the socio-political dimension of the professions, professions refers to occupations having autonomy and control on the substance and on the organization of their work, protecting their dominant position in the market of a service through the presence of a formal legal regulation governing the access and the permanence on them (Freidson, 1970b, Johnson, 1972).

2.6.1 Professional ideology and self-regulation

These contributions can be summarized in the conceptualization of the professionalized workforce provided by von Nordenflycht (2010). Professionalization refers to the presence of a knowledge base, adherence to an ideology and regulatory control over this knowledge. While the knowledge content of the occupation is common to all the knowledge workers, the distinctive features of professions stand on the *professional ideology* and on the *self-regulation*.

Professional ideology refers to:

> *«a set of norms, manifested both in explicit ethical codes enforced by professional associations and in internalized preferences often developed during professional training» (Leicht & Lyman, 2006).*

The preference for professional autonomy, involving the ability to freely exercise his judgement and make decisions on his own work (Hall, 1968), and the trusteeship behaviour, concerning the professional responsibility to protect the interest of the client and of the whole society, represent ones of the most relevant professional norms (von Nordenflycht et al., 2015).

Self-regulation refers to:

> *«the exclusive control over the application of an area of knowledge in a domain of work activities» (von Nordenflycht et al., 2015).*

Professions tend to monopolize an area of expertise, creating and consolidating the legal boundaries that delineate the occupational position (Sacks, 2012) in order to protect their economic status and exclude the outsiders (Malhotra and Morris, 2009). Moreover, self-regulation implies a regulation of the body of insiders through the establishment of professional associations accrediting the members, monitoring and regulating their internal behaviour (Greenwood et al., 2002).

Malhotra and Morris (2009) show how the differences on professions' dimensions - nature of knowledge base, jurisdictional control and client capture - in three sectors – law, accounting and engineering – affect the content of the professional work and consequently shape organizational features of PSFs. Professionalization, defined in terms of high level of task autonomy, high social closure and impermeability of jurisdictional boundaries, decreases moving from law to engineering firms, through accounting firms.

Von Nordenflycht (2010) identifies the three characteristics of the PSFs – knowledge intensity, low capital intensity and professionalized workforce – to formulate a taxonomy of KIFs. The degree of workforce's professionalization, measured by the variation in the presence and strength of regulatory processes and ethic professional codes, induces the author to distinguish between the Classic PSFs and the Neo PSFs.

The *Classic PSFs* are characterized by high knowledge intensity, low capital intensity and professionalized employees. They operate in the more established professional fields like law, accounting and architecture, where dominant professional associations enforce a strong regulative and normative power over occupation performers and practices (Kipping and Kirkpatrick, 2013), using formal processes of accreditation and certification to restrict the access to the market (Malhotra and Morris, 2009).

The *Neo PSFs* present the knowledge intensity and low capital intensity features, but have non-professionalized (or weak professionalized) workforce. They refer to the newer professions such as management consultancy, advertising and public relations, characterised by fewer restrictions to perform and lessen conformity to norms of conduct (Kipping and Kirkpatrick, 2013). Consistently, Fichman (2006) refers to IT and consultancy firms as archetypes of weak professionalism, with voluntary professional associations neither enforcing entry requirements or monitoring the behaviours and services of qualified labour.

As suggested by Kipping and Kirkpatrick (2013), the differences in the professional regulating mechanisms have implications for the organizational field in which PSFs operate. The traditional professional field of the Classic PSFs results to be highly institutionalised and relatively closed to new entrants, maintaining a stable and homogeneous population. Change in the dominant organizational forms occurs slowly and progressively, mainly drive by endogenous forces.

Greenwood et al. (2002) show how jurisdictional and organizational changes promoted by large accounting firm induce an institutional change in the accounting industry, promoting a new organizational model, the multidisciplinary practice, with the supporting role of professional associations legitimating the change by enabling the social reconstruction of the new professional identities.

The emergent professional field of the Neo PSFs is weakly institutionalized, due to the absence or to the lower power of the professional associations in regulating the occupational practices, and opener to the establishment of new firms or to the entrance from the

outside, relaxing the professional standards. The entry of new firms with different organizational models (from the traditional community form of the Big Four to the more bureaucratic and hierarchical structure of the IT-firms) contribute to a discontinuous development of the organizational field becoming increasingly fragmented.

2.6.2 Professions in Italy

The literary distinction between Classic PSFs and Neo PSFs recalls the Italian professional dual system.

Professions are recognized in the Italian Civil Code, included in the self-employed activities, referring to any remunerated economic activity which are not subordinated to the direction of another person (CNEL, 2005). Their pursuit is founded on the professional autonomy and expertise, intellectual and technical independence of judgement (D.P.R. 137/2012; L. 14/2013).

The Italian legal system distinguishes between two categories of professions, regulated and non-regulated professions, according to the involved regulatory mechanism.

Regulated professions

Regulated profession refers to:

> *«l'attività, o l'insieme delle attività, riservate per espressa disposizione di legge o non riservate, il cui esercizio è consentito solo a seguito d'iscrizione in ordini o collegi subordinatamente al possesso di qualifiche professionali o all'accertamento delle specifiche professionalità» (D.P.R 137/2012).*

In order to practice this type of profession, professionals require the enrolment in the professional registers, which is subordinated to the provision of diplomas and certificates attesting the successful conclusion of professional training and the passing of occupational examination, where they are compulsory required. The enrolled professionals become a member of the professional association, a self-regulatory body fostering the professional development and controlling their behavioural conformity to the norms of conduct (D.Lgs. 231/2007). To give an example: the legislative decree No. 139 of the 28th of June 2005 concerning the establishment of the Registry of Qualified Accountants and Bookkeepers states that the professional association must ensure that professionals act in compliance with the set of professional norms (art. 12, 1, b) in order to protect the proper and legal practice of the professional activities, the decorum and independence of the

Registry (art. 12, 1, f).

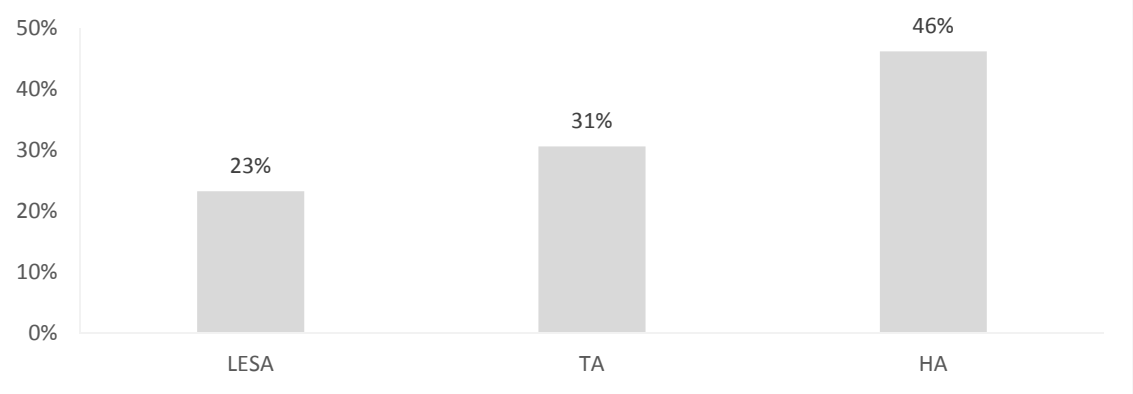
In Italy 27 professional associations are legally recognized, articulated in four activity areas:

- *legal* area, including Lawyers and Notaries;
- *technical* area, including Architects, Engineers, Land Surveyors, Industrial Experts, Agronomists and Forestry, Chemists and Building Surveyors, Geologists, Biologists, Agro-technical, Food technologists;
- *healthcare* area, including Physicians and Dentists, Pharmacists, Obstetricians, Healthcare assistants and Veterinary, Phycologists, Radiologists;
- *socio-economical* area, including Qualified Accountants and Bookkeepers, Social workers, Actuaries, Employment Consultants, Journalists, Customs officers.

The most recent data regarding the Italian regulated professions date back to 2009-2010 and are collected in the report of CRESME elaborated in 2010. According to the CRESME's elaborations based on data provided by the individual professional registries, the regulated professionals amount to 2,108 million (Figure 8): the majority belongs to the healthcare area (HA), the 31% is implied in the technical area (TA), while the remaining 23% falls on the legal and socio-economical area (LSEA). The most numerous occupation results to be the physician with 397 thousand of people, counting for the 41% of the professionals of the health area and representing the19% of the professional sector. The lawyers total 198 thousand, representing the 40% of the legal and social-economic area, while the percentage of qualified accountants and book-keepers in the same area stops to a 23%, with 112 thousand of professionals amounting for the merely 5% of the whole occupational sector.

The totals reported in the 2009 is the result of a continuous and constant growth process: according to CNEL, the professions have increased of the 20%, passing from 1,750 million to 2,108 million, in the period between 2003 and 2009. Comparing with the previous 5 years (Figure 9), the most dynamically growing area emerges to be the legal and social-economic area, reporting a growth rate of 31%, followed by the 22% of the technical area, while the healthcare area presents the lowest growth, with a rate of 14%.

Figure 8 Composition of regulated professions



Source: elaborations of CRESME based on data provided by the professional registries

Figure 9 Professionals percentage variations per area of activities (2003-2009)

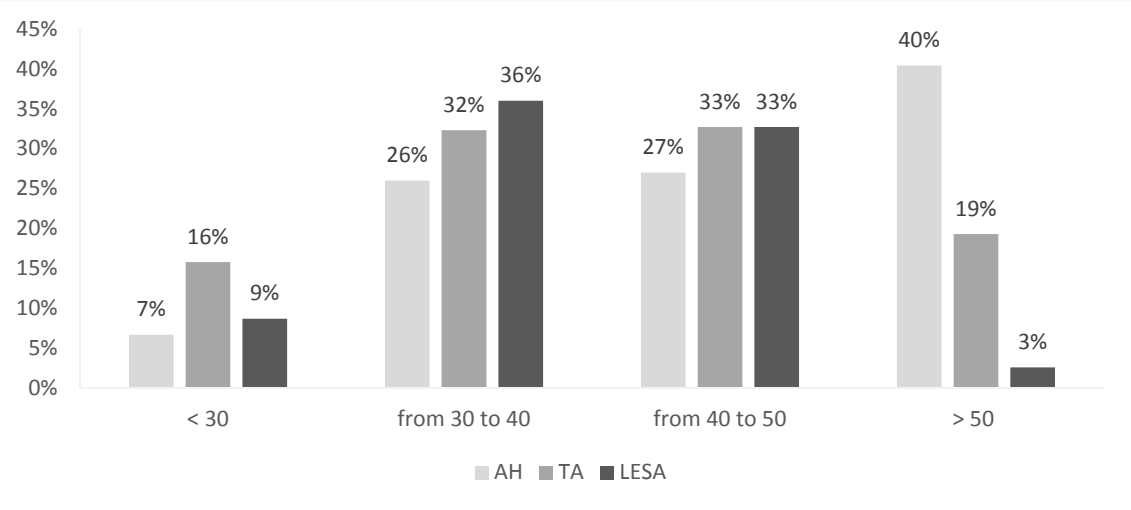
Source: elaborations of CRESME based on data provided by the professional registries and CNEL 2003

Focus on the age distributions of the regulated professionals, the 32% professional are over 50 years old while only the 10% have less than 30 years old, the remaining 58% is fairly distributed among 30-40 and 40-50 years old. Distinguishing per area of expertise (Figure 10), the younger professionals mostly belong to the technical area, while the healthcare area accounts for the greatest percentage of older experts. The legal and social economic area presents a great component of mature professionals: on the basis of the data provided by national Pension Found for the legal professions, CRESME reports that only the 3% of the lawyers have less than 30 years given the long learning process, while the percentage increase to 42% considering professionals among 30 to 40 years old.

Moreover, focus on the professional gender, CRESME evidences the increase of the feminine component in the professional occupations in the last decade, counting for the 44% of the registered professionals in 2009. Except for the technical area which remains strongly characterized by a masculine component, women constitute more than 40% of

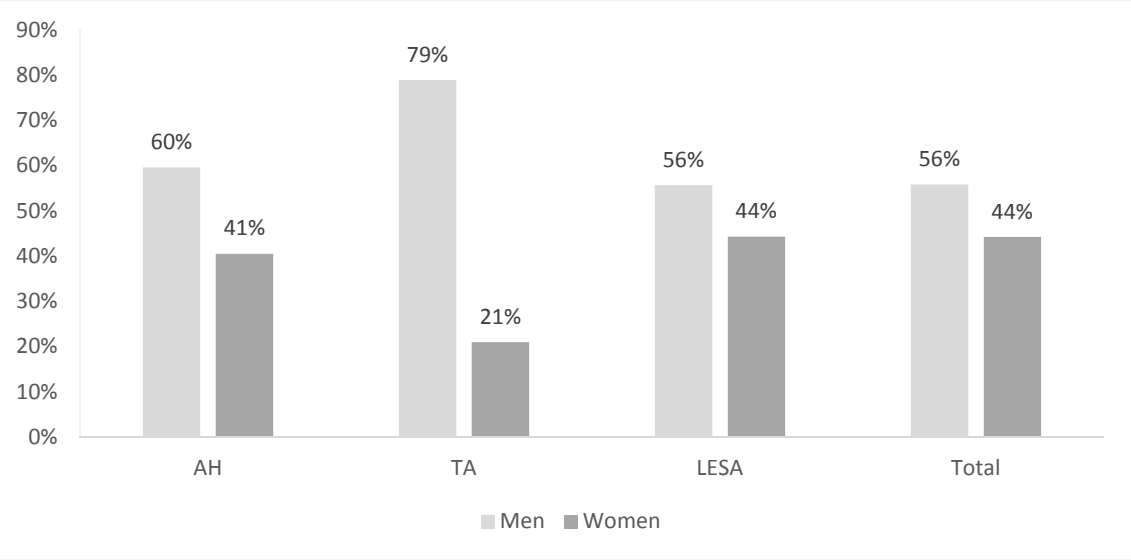
both the health and legal, social-economic area (Figure 11). The qualified accountants and bookkeepers' registry shows the lowest percentage of women between the registered professionals, representing the 30% as well as in the notaries' registry, while the greatest proportions are associated with healthcare assistance and employment consultancy.

Figure 10 Professionals' age distribution per area of activities



Source: elaborations of CRESME based on data provided by the professional registries

Figure 11 Professionals' gender distribution per area of activities



Source: elaborations of CRESME based on data provided by the professional registries

Regulated professions

Non-regulated profession is defined as:

> *«una professione il cui esercizio richiede conoscenze intellettuali e tecniche anche molto elevate, senza che però sia necessario, dal punto di vista legale, il possesso di un titolo di studio determinato; o, comunque, senza che sia necessaria l'iscrizione ad un Ordine o Albo» (CNEL, 2005).*

The implementation of this type of professions is not subordinated to a legal enrolment in professional registers, neither to the possession of specific formal qualifications. Professional may constitute voluntary professional associations, having informative, promoting and qualification functions.

The legislator in formulating the Law No. 4 of 14th January 2013 disciplining the non-regulated professions adopts a complementary approach, referring to any economic activity, usually pursued and mainly involving the intellectual work, with the exclusion of the regulated professions, to provide a complete legal framework to the whole professional category. The more common non-regulated professions are apartment block administrators, professional photographers, industrial hygienists, herbalists, sale representatives, security staff, aerobics and fitness experts, optometrists, investment consultants, naturopaths, renovators and architectural curators and librarian (ADAPT, 2012).

2.7 Conclusion

This chapter highlights the critical resources, competences and power to which PSFs rely on for satisfying their clients' needs.

It emerges that the competitiveness of the PSFs within the operating environment passes through their intellectual capital, the propensity toward organizational ambidexterity and their innovation capabilities. These three variables, individually presented in this chapter, influence one to another allowing the provision of innovative and timely solutions to their clients' problems and amplifying the positive effect on the firms' performances.

Investment in human resources and IT infrastructures foster each components of the intellectual capital, which provide the critical assets for simultaneously acquiring and developing new knowledge, leveraging and exploiting existing resources in everyday activities. The production of new knowledge and the recombination of current knowledge base lead to innovation, in form of ad hoc original customized solutions, new ways for interacting with actual and potential clients or partners and for monitoring the turbulent envi-

ronment (Hogan et al., 2011). Conversely, the innovation process enhances the intellectual capital and consequently the ambidextrous learning tendency, by increasing the firm's knowledge base in terms of services offered and skilled acquired, enlarging and deepening the relationship and flows of knowledge within and outside the firm through the use of new technologies.

Moreover, looking at each individual occupation, knowledge base, self-regulation and adherence to professional ideology, especially for the regulated professions, reinforce the power over an area of expertise, excluding the entrance to the non-qualified professional and protecting their own interest at the expenses of the clients (Chaserant and Harnay, 2011). The protected knowledge expertise and experience lead the insider professional to acquire an information advantage not only against the excluded professional, but, especially, in comparison with the clients.

In the third chapter I focus my attention on the relationships between the clients and the professional, which is characterised by an information asymmetry, given the credence good nature of the professional services.

3. CHAPTER

CREDENCE GOODS AND THE NATURE OF PROFESSIONAL WORK

3.1 Introduction

> L' asserita specificità delle attività professionali ha dato luogo a misure di regolamentazione previste da leggi dello Stato e da codici deontologici adottati dagli enti esponenziali dei professionisti, ordini e collegi, sostanzialmente volte a sottrarre le predette attività all' applicazione delle regole di mercato.

This sentence written by Main (2005), the actual Head Directorate EU and International Affairs at Italian Competition Authority, recognizes the failure of the market institution in disciplining the PSFs.

The explanation should be searched looking at the nature of the professional services. The labour intensity of the production process and the intangibility of the outcome make the professional service a credence good, a good whose qualities cannot be judged neither during the search process nor in the normal use (Darby and Karni, 1973). Consequently, within an advisory relationship, the clients, having less information regarding the professionals' characteristics and actions, are in an inferior position compare with the one of the service provider. The greater the clients' information disadvantage, the greater the clients' dependence on the professional provider. To restore the balance between the parties, the clients should be protected by external interventions.

Moreover, the production of a professional service requires has a relational nature, involving intense interactions with the clients. Its appreciation passes through subjective perceptions and personal experiences. Soft elements, as the professional empathy and

availability or sharing value, result to be determinants in establishing a long-term relationship, which is valuable for both parties. Consistently, Sichel, the CEO of CheBanca! Spa and Compass Banca, in a recent interview reported in the magazine BusinessPeople, reveals that his banks' future competitive advantage should depend on the professionals' ability to build a trustful relationship with their clients.

This chapter is organized as follows. In the first paragraph, I introduce the theoretical classification of goods and services attributes according to the framework delineated by Nelson (1970) and Darby and Karni (1973), explaining the impacts on the degree of information asymmetry within the supplier-client relation. In the second paragraph, I present the professional service as a credence good and the implications for the consultancy relationships, describing how the introduction of disciplining mechanisms, the application of marketing practices and the use of technology support the reduction of the intrinsic information asymmetry.

3.2 Credence Goods

The economic literature suggests that goods and services can be represented along a continuum, spanning from easy to difficult to evaluate, depending on the clients' availability of information for assessing the quality of the product. Nelson (1970) and Darby and Karni (1973) distinguish the qualities of goods and services in three categories:

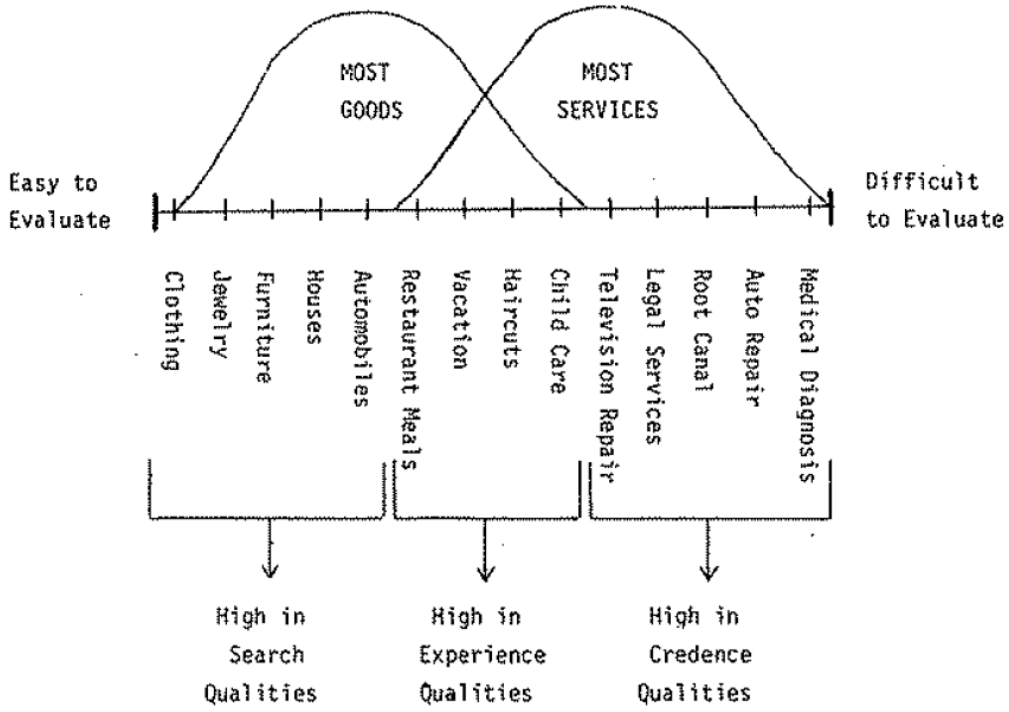
- *Search attributes* referring to those qualities - as colour, dimensions, size - which can be easily identified and examined by the client in the search process before the purchase;
- *Experience attributes* referring to those qualities - as the taste, wearability - which can be detected by the client only after the purchase;
- *Credence attributes* referring to those qualities which cannot be evaluated by the client either before either after the purchase.

While the products present all these three qualities, as depicted in Figure 12, the goods exhibit mainly search attributes, falling to the left side of the continuum, and the services, given their intrinsic features of intangibility, non-standardization and inseparability of production and consumption, possess few search attributes and many experience and credence attributes, making their evaluation more difficult (Zeithaml, 1981).

The dominance of *search*, *experience* or *credence* attributes in goods or services impacts

on the degree of information asymmetry between the buyer and the seller. Search goods involve any or a little of information asymmetry, because their qualities can be easily evaluated prior the purchase. Experience goods, given the buyer's uncertainty about quality before the purchase, are affected by ex ante information asymmetry, which is solved with the product's consumption.

Figure 12 Continuum of evaluation for different types of product



Source: Zeithmal, 1981

Different to the previous categories, credence goods present a persistent, ex ante and ex post, information asymmetry:

- prior the purchase, the consumer is unable to diagnosis his current condition and to determine what he needs, inducing him to refer to an expert (Darby and Karni 1973; Dulleck and Kerschbamer 2006);
- after the purchase, the consumer is unable to assess the quality of the service received, meaning that he cannot know whether he receives the quality required neither if the quality required fits with the real level needed (Darby and Karni 1973; Dulleck et al. 2011).

According to the amount of information available, the expert has an information advantage that he can exploit at the detriment of the client, adopting one of the following

strategic behaviours, which cause inefficiencies in the credence goods markets (Dulleck and Kerschbamer 2006):

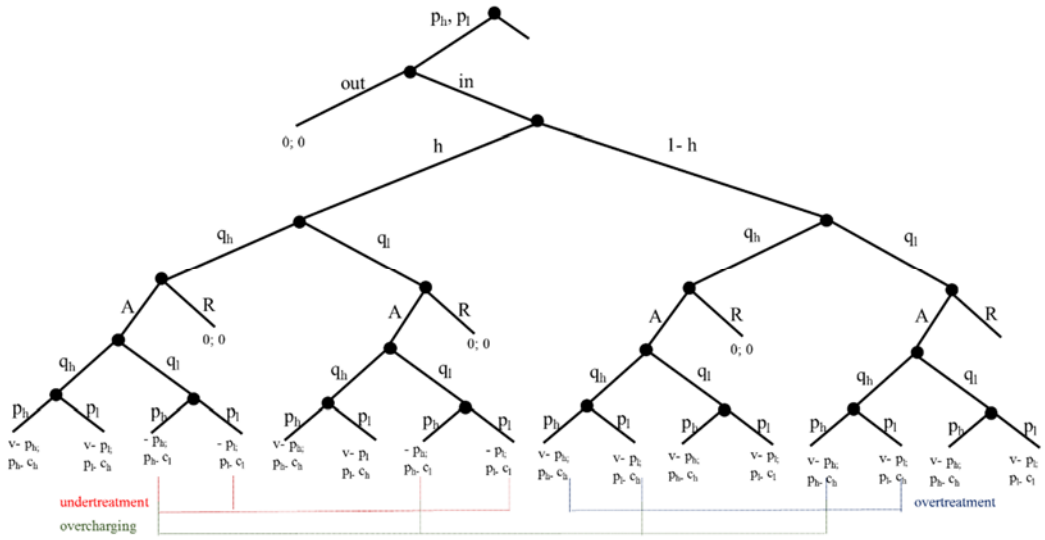
- *Undertreatment*, when the seller supplies less than the required service, the client loses the potential benefits he would get from the appropriate service;
- *Overtreatment*, when the seller supplies more than the required services, the client faces additional costs overcoming the benefits from the higher quality;
- *Overcharging*, when the seller supplies the required service at the higher price, the client may delay the service provision due to the high price.

The decision-making process regarding the purchase of a credence good can be represented in a game tree (Figure 13). Consider a simple model involving a consumer and a seller. Supposed the former has a need requiring an expert's intervention, but it is not able to determine the extent: he knows to need a high service effort (q_h) with probability h and a low service effort (q_l) with probability 1- h. The latter bears cost c_h and c_l, respectively for the high level of service and for the low level of service (with $c_h > c_l$), and he sets price of p_h for the high level of service and p_l for the low level one. The consumer sees the prices set by the seller and then decides whether to interact or not with the seller. In case of interaction, the seller analyses the consumer's situation and recommend the high or low level of services; otherwise, the payoff of both players would be zero. If the consumer rejects the recommendation, the players' payoff continues to be zero (to simplify the model the diagnosis cost incurred by the client to get an expert's advice is assumed to be zero); in case of acceptance, the seller supplies one of the two services and charges one of the two price. Given that the consumer's inability to evaluate ex post the quality of the service received, the seller may behave strategically:

- Providing q_l even if the consumer needs high level (undertreatment),
- Provide q_h even if the consumer needs low level (overtreatment)
- Provide q_l at p_h (overcharging)

The consumer gets a value $v>0$, whenever he receives a sufficient level of service. The final monetary payoff depends on the seller's strategic behaviour: the consumer earns the difference between the value get from the service provided (which is either 0 or v) and the prices paid, while the seller receives the price charged minus the cost (c_i) of the service provided.

Figure 13 Game tree of credence goods



Source: adapted from Kerschbamer et al. 2009

Empirical studies investigate on how restricting those market inefficiencies. Dulleck and Kerschbamer (2006) suggests the solving function of the market institution under the presence of specific assumptions (costumer homogeneity, effective commitment between expert and consumers, verifiability of the treatment and liability clause). Kerschbamer et al. (2009) evidence that the verifiability assumption has no relevant implications on the market efficiencies, justified by the presence of experts' heterogeneous distribution of preferences impacting on market efficiencies in opposing way. Dulleck et al. (2011) investigate on the role played by institutional constraints (liability and verifiability) and market conditions (reputation and competition) introduced in the credence good markets in order to restrict the market inefficiency. The findings reveal that only the liability clause, imposing the provision a good of sufficient quality on the seller, effectively results in stimulating the volume of trade and reducing the market inefficiencies.

3.3 PSFs as credence goods

Professional services consist in the provision of a customized and complex output, developed in a relationship framework characterised by information asymmetries between the professional and the client (Howden and Pressey, 2008) and resulted from the intangible application of professional knowledge (Greenwood et al., 2005) and the intense interaction with the clients (Fosstenløkken et al., 2003). The professionality of the workforce and the idiosyncrasy of the outcome is difficult to evaluate both in selecting the service

provider and in evaluating his performance: accounting, consulting, medical and legal services present significant credence attributes (Dulleck and Kerschbamer, 2006; Howden and Pressey, 2008; Gallouj, 1997).

Given the technical complexity of the services, a client hires a highly educated professional having the knowledge and the competences for examining the client's condition and providing the appropriate level of service he requires. The professional service's production process is highly people-based, requiring the active participation of the client (Cameran et al., 2010) in explaining the evident symptoms of his problem and providing documents and information useful to delineate the client's need. It involves a significant degree of confidentiality and trust in the expert provider (Mitchell, 1994), who is allowed a great amount of autonomy and an independent use of professional judgement in defining the client's requirements in terms of type of service and demanded effort and supplying a problem-solving customized solution. The degree of information available and the criticality of the expert's behaviour and commitment nurture the uncertainty of the entire process, reducing its measurability (Gallouj, 1997).

Moreover, the nature of the product intensifies the credence attribute of the professional services. The outcome is unobservable and idiosyncratic (Causholli and Knechel, 2012; Greenwood et al., 2005), consisting in a combination of expertise and experience (Gallouj, 1997) and depending on the skill level of the workforce (Mitchell, 1994). Given its human intensity and its complexity, the client is unable to weight the content and the quality of the service product: professional services are affected by performance ambiguity (Bowen and Jones, 1986). The problem solution involves a subjective interpretation, it is difficult to distinguish a correct from an incorrect solution, consequently ex post it is impossible to determine if a problem was properly solved (Mitchell, 1994). A negative performance is not necessarily a consequence of an expert's misbehaviour: a lawyer may lose a trial or a doctor may fail medical operation fails, even though they exert the effort required to perform well. Several uncontrollable variables may intervene affecting the whole process: in a trial the jury's behaviour is not under the control of the lawyer, as a doctor cannot consider any patient's reactions.

Gallouj (1997) argues that professional services require complex system of evaluation, given the failure of the traditional method due to the significant amount of uncertainty on the nature and the quality of the product supplied. In literature, many studies are made to

understand the variables driving the customer's satisfaction in the professional services context. Aga and Safakli (2007) conduct an empirical evaluation of service quality, using the SERVQUAL model and investigate on the relationship among customer satisfaction, service quality, firm image and price of service in the professional accounting firms operating in North Cyprus. They find out that the overall firm image mainly positively impacts on customer satisfaction, followed by price and empathy, the only dimension of service quality statistically significant related with the customer satisfaction. Cameran et al. (2010) explore the relationship between customer satisfaction, corporate image and service quality in audit firms, using questionnaire sent to financial executives of leading Italian companies. Concerning the corporate image dimensions, the findings reveal that greater satisfaction is associated with audit firms having an effective image, more friendly attitude and female orientation and showing greater imagination and a lower risk propensity. Moving to the service quality dimension, the provision of useful idea for improvements emerges to be the most relevant explanatory variable for a high satisfaction, followed by a high judgment of competences of the audit partner and team. Trasorras et al. (2009) conduct a survey among professional service providers in the Tampa Bay, Florida (USA) investigating on the relationship between satisfaction and the customer retention. Even though satisfaction results to be a relevant explanatory variable, loyalty emerges to drive the customer's retention. These findings are consistent with the empirical results obtained by Eisingerich and Bell (2007) examining the effects of perceived service quality, trust, and loyalty on repurchase intentions.
Loyalty is defined as:

> *«customers' commitment to increase the depth and breadth of their relationship with the firm as well as customers' willingness to speak positively of the service organization» (Eisingerich and Bell, 2007).*

Despite the empirical attempts to find objective variables to evaluate the professional performances as determinants of the consequent client's behaviours, what emerges is that any client adopts his subjective criteria depending on his own experience and background.

3.3.1 Asymmetry of information in PSFs

What is commonly accepted in a context of high credence good is that relationship quality from the client's perspective depends on the professional's ability to lessen the perceived

uncertainty (Mitchell, 1994). The greater the client's uncertainty, the greater the information asymmetry and client's dependence on the professional (Greenwood et al., 2005). In the professional service context, the client deals with an information deficit mainly due to two reasons: *adverse selection* and *moral hazard.*

Adverse selection

Adverse selection refers to the inability of the client to observe or get information about the characteristics of the expert, as the level of professional knowledge, expertise and experience, determinant for the service provision (Gallouj, 1997). While a client searches for trust and commitment from the expert, adverse selection may lead him not to select the suitable professional.

As Mitchell (1994) suggests that the purchase of a professional services involves significant amount of time, money and people without having any assurance of a successful outcome. Empirical studies have been done in order to drive the client's selection process. O'Farrell and Moffat (1991) articulate the selection and evaluation process in four stages:

1. the search for information on potential suppliers;
2. the evaluation of potential suppliers and the call for tender;
3. the evaluation of tenders and shortlisting; and
4. presentations by the selected suppliers and the final choice.

Mitchell (1994) argues that the word of mouth is the primary source of information, stressing the relevant contribution of referral networks in reducing the uncertainty regarding the choice of the professional. Barr and McNeilly (2003) provide empirical evidence of the leading role of networking with professionals and referrals in generating new clients in accounting firms. This is consistent with the suggestion made by Zeithaml (1981) regarding the client's reliance on personal sources given the high risk perceived in credence goods purchases. Scott and van der Walt (1995) empirically confirm the greater reliance in personal sources in accounting firms, comparing the frequency in which they are used with the one of the non-personal sources.

Moreover, their marketing research reveals five important factors (competitive advantage, personal service, external recommendations, image, product range) along which a sample of 300 of client firms operating in New Zeeland select an international accounting firms. Day and Barksdale (2003) investigating on the dynamics of the selection process find out that clients develop their shortlists basing on hard criteria as experience,

qualifications and understanding of the project, while their final choice depend not only on capacity and capability, but also on soft criteria, as level of enthusiasm, responsiveness and perceived chemistry.

Moral hazard

Moral hazard refers to the inability of the client to observe the actions undertaken by the professional or assess the appropriateness of the actions to satisfy his need, that he is unable to evaluate (Gallouj, 1997). The moral hazard may induce the expert to exploit his information advantage by undertaking actions in his interest, instead of providing the best solutions for the clients' problems. Causholli and Knechel (2012) analyse the credence good attribute of the auditing and distinguish between three strategic behaviours of the auditor, aligned with the general theory of the credence goods:

- undertreatment, when the auditor provides less audit than required;
- overtreatment, when the auditor provides more audit than required;
- overcharging, when the auditor is paid for high level of audit, even though he supplies the low level of audit.

3.3.2 Disciplining mechanisms in PSFs

Given the asymmetry of information plaguing the market of professional service, institutions occur to reduce the uncertainty surrounding the consultancy relationship.
Gallouj (1997) defines these institutions, in accordance with the market for lemon principle of Akerlof (1970), as:

> *«a series of mechanisms and organizations that have the role of ensuring that the consumer's limited information, and lack of ability to assess quality, do not threaten to put the market's very survival in jeopardy».*

Professional organizations

The traditional professions, as auditor, lawyers and doctors, are organized in professional associations, attesting the expertise of their members and disciplining their behaviours. A professional technical knowledge, an academic and training education enforce entry barriers in the occupational markets, expelling the individuals without the specified requirements (Gallouj, 1997). Even though these associations operate to maintain the market closure and protect the professionals' interests, they regulate and monitor the expert's

behavioural consistency to an ethic code and to a set of norms of conduct, intervening with penalties in case of misbehaviours. Given that one of the principal norms is the trusteeship imposing the professional responsibility to act in the interest of the clients (von Nordenflycht, 2010), professional associations contribute in reducing the client's information deficit, guaranteeing ethical and correct professional's actions (Nuñez, 2001). Chaserant and Harnay (2011) verify that the probability of high quality service provision increases in presence of professional self-regulation.

Signalling strategies

Wittreich (1996) argues that a clear objective of the client is to identify a true professional, a person who is capable of providing the service. Labelling process and formal certifications attesting the professional competences and expertise are used as signal of professional behaviour and expert capacity to effectively deal with the client's problem (Gallouj, 1997). Moreover, Gallouj (1997) argues that the professional may provide a quality signal of their skills:

- by signing contractual guarantees explicating his responsibility in case of unsuccessful outcome;
- by adopting a form of contingent compensation, which links the remuneration to the achieved results in project with measurable objectives.

Bluethgen et al. (2008) investigate on the financial advisor characteristics used as quality indicators. The study reveals that the compensation scheme and the advisor's rationality result to be the two highly predictive variables for investors searching for high quality advisors. Fong and Xu (2012) argues how the contingent component of a contract can be used to reduce the information asymmetry, because it serves as a signal of the expert's information. They find out that this signal incentive varies whether a good service outcome depends on a high service value or a low service value. In the former case, higher fees convey a higher service value in equilibrium, so the stronger is the signal incentive of high value relative to the incentive to effort commitment, the greater the contingent equilibrium contracts are. Conversely, in the latter case, lower fees convey higher service value, so the stronger is the signal incentive of high value relative to the incentive to effort commitment, the lower the contingent equilibrium contracts are. Fong (2007) adds that detailed performance measurements are useful for detecting and evaluating the expert's quality. Focusing on the surgeons, he delineates optimal evaluation contracts in the form

of scoring rule according to the different types – bad or good surgeons – in order to maximise the patient's welfare and reduce the surgeon's incentive to manipulate performances.

Moreover, Von Nordenflycht (2010) identifies four mechanisms to signal quality in contexts characterized by opaque quality: bonding, appearance, ethical code and reputation.

Bonding consists in organizational mechanisms guaranteeing high quality through the punishment of individuals producing low quality service. Greenwood and Empson (2003) argues that the professional unlimited liability partnership, where the legal liability for debts and business actions is on the partner's hands without any form of assets partitioning, strengthens the mutual control and pressure to produce high quality products, because each partner is liable for their fellows' misbehaviours exposing the firm to financial and legal risks. In addition, the high-quality production is ensured by organizing professions in professional associations, excluding the dishonest member and depriving them of the potential membership benefits (Chaserant and Harnay, 2011).

The *appearance* of a firm and employees is manifested by the constructed image of the firm and conveyed by the style and the experience of the individual professionals. Teece (2003) suggests that good brands and the individual name have great value in the professional service context creating awareness and supporting a premium price.

The establishment of ethical *code* guarantees the adherence to a professional conduct and the professional commitment to protect the client's interest.

Reputation refers to:

> *«an implicit promise that a party to a contract will not act opportunistically in the case of an unforeseen event» (Gallouj, 1997).*

As Kaiser and Ringlstetter (2011) suggests reputation ideally reveals the PSFs' critical resources consisting in knowledge and relational competences. Chaserant and Harnay (2011) argues that clients obtain useful information about the quality both from the individual and collective reputation of professions. The value perceived by the client increases because reputation reduces the ex ante search costs, serving as quality indicator, and the ex post purchased risks, acting as assurance of satisfactory outcome (Sheehan and Stabell, 2010). Moreover, reputation enables a virtuous circle inducing the firms to supply high quality services in order to maintain a good reputation (Sorenson, 2014).

A greater firm reputation attracts the best professional (Løwendahl, 2005), increasing the

probability to successfully solve the clients' problems, which justifies the payment of a premium price and the protection against the competitors' actions (Rhee and Haunschild, 2006). Many clients rely to the firm without a huge firm's marketing investment. The increase in volume of services, the reduction in marketing costs and the ability to charge higher price results in a higher profit for the firms with a good reputation (Greenwood et al., 2005). Whether the firm fails in supplying the quality level implicit guaranteed by the reputation, clients lose their trust on the firm then punish the firms migrating to a competitor and creating a negative world of mouth that lessen the firm reputation (Rhee and Haunschild, 2006).

Reputation is a double-edged sword (Rhee and Haunschild, 2006), it should be properly managed by the firm to avoid downside effects through internal auxiliary activities and maintaining the support of key external stakeholders based on their beliefs of firm capacity to create value.

Kaiser and Ringlstetter (2011) identify two approaches to increase reputation related to the type of service provided:

- a *specialist approach* consisting in focusing on a certain service, supplying it in a better and faster way than competitors;
- a *generalist approach* consisting in providing a package with a variety of services at lower costs.

Moreover, they suggest a set of effective ways to convey information contributing to assess the firm's reputation, as appearance of employees, alumni contracts, PR management, performance guarantees, crisis management and advertising. Signalling strategies failing in communicating the appropriate quality of the service impair on the firm's reputation. Given that reputation results to be a critical source of competitive advantage for the PSFs, a damage on reputation will be reflected in a lower firm's competitiveness (Sheehan and Stabell, 2010). If a firm is able to signal the quality of their service constructing a good reputation and supply a degree of quality service consistent with the reputation, PSF will create value for the clients and it will be recompensed by the clients' trust (Kaiser and Ringlstetter, 2011).

Trust is defined as:

> *«a willingness to rely on an exchange partner in whom one has confidence» (Moorman et al., 1992).*

This definition includes both:

- a psychological component referring to the client's belief and expectation that the service provider is a reliable expert with high integrity (Morgan and Hunt, 1994);
- a sociological component referring to the client's behavioural intention to rely on service provider, involving uncertainty given the former's inability to control and observe the latter's action (Sirdeshmukh et al., 2002).

Kaiser and Ringlstetter (2011) distinguish between three different sources of trust in the PSFs:

- *characteristic-based trust*, focusing on the individual characteristics and similarities in terms of common cultural references and shared values (Gallouj, 1997), given the significant role of the individual in producing and delivering the process (Mitchell, 1994);
- *institutional-based trust*, focusing on the role of the professional associations in guaranteeing a honest and reliable behaviour;
- *process-based trust*, looking at trust as socially constructed during the interaction process. A typical interaction based mechanism involved four steps – individual actions, episode, sequence and relations – along which trust developed over the time.

Aligned with the process-based trust, Moorman et al. (1993) empirically verify that trust results to be a product of a relationship rather than an individual factor of the parties involved. Interpersonal factors emerge to be the most predictive variables of trust, including partner's perceived integrity, willingness to reduce research uncertainty, confidentiality, expertise, tactfulness, sincerity, timeliness and congeniality. Among the other factors, they find out that customization positively affects the trust, creating a relationship specific assets. Eisingerich and Bell (2007) provide empirical evidence that trust in financial service context is influenced by both the quality of intangible outcomes (technical quality) and the client-advisor nature of interactions and commitment.

Trust does not only nurture a loyal client behaviour inducing to a repurchase (Eisingerich and Bell, 2007), but it creates the foundations for a long-term relationship (Patterson, 1999), valuable for both parties (Fischer et al., 2014), given the client's involvement in the business and his increasingly critical role in the innovation process (Fosstenløkken et al., 2003).

The high reciprocal value generated in a relationship characterized by trust induces the

parties involved to work for maintaining it over the time (Morgan and Hunt, 1994). Relationship commitment enables a successful long term relationship (Patterson, 1999). *Commitment* is defined as:

> *«an enduring desire to maintain a value relationship» (Moorman et al., 1992).*

Morgan and Hunt (1994) identify commitment and trust as key variables for the success of a relational exchange. They argue that, given the idiosyncrasy of the investment, the relationship termination costs and benefits directly increase the relationship commitment, the belief to common values contributes to the development of both commitment and trust, while an intense communication and a lower degree of opportunity behaviour foster trust within the parties, which turns in intensifying the level of relationship commitment. This analysis is consistent with Patterson's (1999) framework considering trust as mediating variable between communication, technical and functional quality and relationship commitment. Moreover, the author stresses the critical role of an effective communication in shaping the clients' quality perceptions and nurturing a confidence feeling.

An effective communication reduces the ex ante information deficit of the client, by educating the client in assessing the risks incurred and the potential outcome of the services. Then, frequent interactions and timely information clarifying the development of the service production and solving potential problems enable the creation of social and emotional bonds, contributing to the development of trust and inducing to a relationship commitment. Moorman et al. (1993) state that timely and sincere information fosters trust by resolving conflicts and shaping aligned expectations. Barr and McNeilly (2003) find out that lack of communication about problems represent one of the primary reason for switching firms in the accounting industry.

Those studies revealing the importance of effective communication, trust and commitment in building an enduring consultancy relationship have practical implication for the PSFs. Firstly, given the importance of interpersonal factors for the continuity of the relationship, in hiring a professional they should search for expertise as well as social traits, as friendliness and empathy in order to be able to properly interact with the clients.

A firm should invest resources in training their workforce for educating them to build a relationship (Reid, 2008), despite any individual reticence.

Furthermore, any service encounter constitutes an opportunity to obtain firm's information, establish a dialogue with the client and to deepen their reciprocal knowledge, so a professional should show to be immediately responsive and provide reassuring signals of the quality of the service to reduce the client's perceived risks and increase his confidence.

3.3.3 Marketing practices of PSFs

Marketing in PSFs is a controversial issue posing specific challenges (Barr and McNeilly, 2003).

Gummesson (1979) delineates the critical role of professional in the production as well as in the marketing activities, involving person-intensive tools and imposing costs quantified in terms of time not devoted to profitable work. The author suggests that professionals should have marketing competences and be able to accurately manage their work load considering the marketing activities a part of it. Amonini at al. (2010) states that some professionals keep a negative opinion on marketing, fearing to devaluate the business services. Barr and McNeilly (2003) argue that may professional services providers consider marketing as a form of advertising.

Nevertheless, the increasingly complexity and competitiveness of the professional service environment, due the globalisation and the development technologies making the client more knowledgeable about the service, and the intrinsic need to adhere to professional standards create strong external pressure on the firms (Reid, 2008). The changing market environment induces the PSFs to compete aggressively: by investing resources in building and leveraging customer relationship, PSFs may be able to obtain a competitive advantage and realize superior performances (Sweeney et al., 2011). Consequently, marketing becomes to be perceived as a strategic tool supporting the long-term growth and competitiveness of the firms in the market (Barr and McNeilly, 2003).

The credence attribute and the relational nature of the professional service shape the PSFs' marketing practices (Sweeney et al., 2011). Professional services are classified by Lovelock (1983) as medium-high contact, involving a high degree of customization and requiring numerous interactions and interpersonal communication (Patterson, 1999) to understand the client's characteristics and tailor the service to the specific client's needs.

Consequently, relationship marketing, dealing with creating and managing customer relationships, is expected to be dominant rather than a transactional approach, using the traditional marketing mix to attract and retain the customers (Reid, 2008; Sweeney et al., 2011). According to the classification formulated by Coviello et al. (1997, 2001), relationship marketing includes:

- *database marketing*, relying on information and technology based tool to developed a personalised relationship with their targeted customers with the extent to retain customers;
- *interaction marketing*, implying individual face to face interactions with the clients occurring at both formal or informal levels;
- *networking marketing*, developing relationships across firms belonging to the same network to get a mutual benefit;
- *e-marketing*, adopting Internet and other interactive technologies to actively communicate and interact with the customers.

Reid (2008) empirically verifies that the significant impact of interaction marketing on financial performances and the positive effect of both interaction marketing and database marketing on client related performances. Distinguishing on the size of the firm, this analysis reveals that larger accounting firms are more relational oriented than the smaller counterparts: they focus more on the development of a long-term relationships, emphasising the use of specific communications as well as personal formal and informal interactions and networking actions. These findings are consistent with the results obtained by Sweeney et al. (2011) investigating on the marketing practices in the professional service firms. They find out that interaction marketing and networking are the most frequently and effectively used practices, but, despite the frequency in practice, transactional practices are relevant too. While transaction and database marketing are more closely related to financial and market performances, the interaction and database marketing greater influence the customer performances. This analysis suggests that a higher level of firms' performances is associated with a competent and combined used of marketing practices. PSFs should be aware of the potentiality of different marketing practices and properly manage them to build a sustainable competitive advantage in a dynamic and highly competitive markets (Reid, 2008; Sweeney et al., 2011).

3.3.4 Technology

Nowadays, information technologies by enabling progress in interactivity and improving the communication beyond the physical limits offer significant opportunities for creating and maintaining a long-term relationship (Coviello et al., 2001). In other words, IT technologies support the consultancy relationship reducing its distinctive information asymmetry, both before and after the purchase.

Adopting Orlikowski's framework (2000), according to which technology serves an organization preserving, enhancing or transforming the status quo, Coviello et al. (2001) illustrate how the IT different roles - inertia, application and change - can be applied to the five previously determine marketing practices (Figure 14).

Figure 14 Five Marketing Approaches according to the ICT roles

Role of IT	*Approach to IT*	*Transaction Marketing*	*Database Marketing*	*e-Marketing*	*Interaction Marketing*	*Network Marketing*
Inertia Role	IT as a reinforcing tool	Transaction processing	Database	Simple brochure site Targeted e-mail	Interactive catalogue site Two-way e-mail	Simple document exchange through Intranet/Extranet
Application Role	IT as an enhancing tool	Buy/sell transactions	Data Mining	Internet channel	Technical chat rooms for individuals	Sophisticated information exchange between groups
Change Role	IT as a transforming philosophy	Not possible	Not possible	POSSIBLE	Not possible	Not possible

Source: Coviello et al., 2011

Treating IT as *reinforcing tool*, transaction marketing uses technologies for processing the high volume of transactions, database marketing employs technologies for collecting and organizing customers' information, e-marketing, interaction and network marketing employs technologies respectively for creating customized email and for supporting personal or group interactions.

Treating IT as an *enhancing tool*, transaction marketing can automate the purchase transactions, database marketing can extract data and use it for increasing actual clients' sales, e-marketing can introduce Internet channel beside the other distribution channels, while interaction and network marketing expand the business by fully automating interactions and communications, creating chat room for receiving technical advice or network for exchanging sophisticated information.

Treating IT as a *transforming tool*, only e-marketing appear to have the potentiality to structurally renovate the rooted organizational practices.

Moreover, ex ante the purchase, technologies can support signalling strategies, providing the client with information meaningful for the choice of the professional. Roxas et al. (2000) argues that an affective website can convey the technology expertise of an accounting firm, which acts as differentiating features, as well as expressing professional's credibility, reporting his qualifications and experience, and the firm's information about the variety of services provided and on the operating area. Constructing reputation and trust online remains a critical issue, despite some scholars' attempts to identify the facilitating variables. For example, Shneiderman (2000) suggests how build trust in online environment involving professional services:

- by granting strong assurances, including the disclosure of past performances, the provision of professionals' references from the past users or certifications from professional associations and the enforcement of privacy and security policies;
- by clearly clarifying the participants' responsibilities and obligations.

Online feedback mechanisms contribute in defining the provider's reputation, fostering cooperation among the actors involved (Dellarocas, 2003) and creating incentives for professionals' ethic and correct behaviours (Ba, 2001). As mentioned in the first chapter, they can be misused leading to negative impacts for both the platform's users, basing their decisions on false information, and providers, damaged by a bad reputation.

Ex post, technology provide a direct communication channel contributing to the development of the knowledge work by enabling frequent social interactions and rapid flow of information. Barr and McNeilly (2003) state that PSFs can monitor the client satisfaction through online survey allowing to receive opinions and feedbacks on the outcomes and foster the client relationship by improving the services accepting the clients' suggestions. Riemer and Scifleet (2012) analyse the phenomenon of the Enterprise Social Networking (ESN) platforms, a collaborative ICT technology enabling social relationships, communication and ad-hoc sharing between employees in the professional service context. They find out that ESN platforms support the knowledge intensive working practices:

- by *building a shared ground*, through discussions and information sharing, contributing to understand and interpret other people's questions, problems and ideas;
- by *providing new information input*, allowing people to share interesting links, files and documents;
- by *creating new knowledge*, arising from internal form of crowdsourcing;

- by *exploiting the existing knowledge,* permitting to the people to solve their questions, learn from other professional or access to dispersed knowledge.

ICTs improve knowledge transferability, by distributing worldwide codified knowledge in forms of data and assisting tacit knowledge transfer though the creation of a virtual environment enhancing personal communications (Roberts, 2000). To give practical examples (Table 3), e-mail, discussion lists and information database are suitable tools for transferring codified knowledge, while voice mail, teleconferencing, videoconferences facilitate interpersonal interactions across distance.

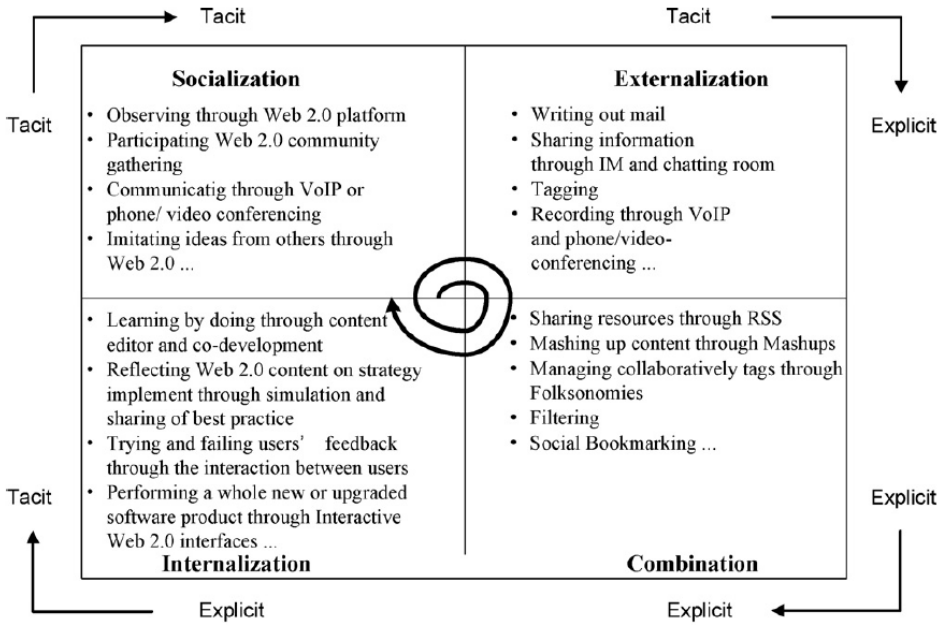
This improvement knowledge transferability enabled by ICTs do not only contribute to foster the PSF's relationships, but they radically impact on the PSF's work content: the exchange of information and opinions facilitate the recombination of existing knowledge and the generation of new idea (Shang et al., 2011). Within the SECI framework, Figure 15 illustrates how different technologies can intervene in supporting the four stages of the knowledge production - socialization, externalisation, combination and internalisation. Given the importance of new knowledge input and client's involvement and commitment for PSFs' innovation, technology results to be intrinsically critical for enhancing professional innovation activities.

Table 3 Examples of ICT services enabling information and knowledge transfer

ICT Services	Comments
Electronic mail (e-mail)	For day-to-day project communication, and the transfer of documents (including minutes and agendas of meetings, project reports, schedules etc . . .).
Voice mail	Asynchronous audio communication.
Teleconferencing	Telephone discussions between more than two people.
Videoconferences	Group meeting among geographically dispersed individuals (often formal). Videoconference rooms may be dedicated to particular projects allowing for frequent use.
Desktop video- conferencing	One-to-one meeting, or small groups (often informal). May include shared computer displays and virtual project rooms.
CAD and CAM	For the transmission of specifications from design to manufacturing.
Discussion lists	Information can be shared and stored through questions and answers, encouraging the codification of knowledge normally held by select individual within the organisation.
Information databases	For common access to project data.
Groupware	Includes a range of the facilities listed above, and is becoming more widespread (examples include Lotus Notes and Novell Groupwise).

Source: Roberts, 2000

Figure 15 The knowledge-creating cycle in Web 2.0 technologies



Source: Shang et al., 2011

3.4 Conclusion

While in the second chapter I emphasise the organizational assets and competences critical in determining the competitiveness in the market environments, the third chapter illustrates the relationship resources contributing in building and maintaining profitable relationships.

Beside the regulatory and contracting mechanisms guaranteeing the ethical correctness of the professionals' behaviours, a well-constructed image and a good reputation do not only convey useful signals to the clients for assessing the professionalism of the workforce and the value of outcome, but it induces an internal pressure to maintain high quality standards. It leads to generate greater value for the clients and better performances for the firms.

While reputation consists in valuable asset for attracting clients, the establishment and the maintenance of a long-term relationship require a strategically defined marketing plan and a flow of continuous interactions and effective communication to foster a reciprocal knowledge and a trust feeling. As we have seen in the previous chapter, the network of relationships constitutes the social capital of the PSFs, which contribute in acquiring input and stimulus for renovating the firms' knowledge base and generating innovative solution for the clients.

What emerges in this chapter is that the value of the relational resources is reinforced by the adoption of the new technologies. The emergence of online business model, also for the professional services, changes the way to convey the expertise and professional credibility. The professionals need to construct a digital identity consistently with the real one: an institutional website may contribute in providing exhaustive information during the search phase, online feedback mechanisms may help in building a digital reputation. Moreover, ICT support the relational commitment by multiplying the interactions points and improving the flow of information and knowledge within and outside the organization. By improving the knowledge transferability and the clients' involvement, technology can change the way in which the PSFs work.

In the fourth chapter I concentrate on the potential technology implications on the PSFs' supply content, on the way of producing and delivering the service.

4. CHAPTER

HOW PSFS COMPETE IN THE ON DEMAND ECONOMY

4.1 Introduction

> La *digital transformation* ha un impatto sul mondo professionale e imprenditoriale, non solo in termini di innovazioni tecnologiche e nuovi strumenti informatici a disposizione, ma anche in termini di investimenti, creazione di nuovi modelli di business e di organizzazione del lavoro. (Micaela Colin, 2016)

In a recent article of the VeneziePost, Micaela Colin, president of the Registry of Qualified Accountants and Bookkeepers of Triveneto, introduces the digital revolution as principal argument of the first event organized by the Association of the Qualified Accountants and Bookkeepers of Triveneto. The opening sentence focus the attention on the necessity of the digital transformation in a specific sector, the audit industry, which is the subject of the research project, that I report in this chapter.

Digitalization in audit industry is imposed by law (Rorato, 2016). Law driven innovations, as the introduction of the e-Invoicing, digital documents and graphometric signature, imply radical changes in the organizational systems of the firms and the professions, exerting a pressure towards internal process standardization and automatization (Cortellazzo, 2015).

The accountancy profession, given their critical advisory role of the client firms, are required to know the business opportunities provided by the digitalization and to increase their skills in adopting the technologies for efficiently managing the firms' internal and external processes. Professions should themselves interiorize new business paradigms for

satisfying the more complex clients' demand (Rorato, 2016). Moreover, riding the wave of the digitalization phenomenon represents for the professional sector an opportunity for growing and improving their financial performances (Colin, 2016).
Technologies affect the efficiency, the productivity and the competitivity of the PSFs.
This chapter is organized as follows. In the first paragraph, I briefly introduce the research project and I make a description of the resulted sample. In the following paragraphs, I explain the variables and the method used in delineating my object of analysis, the digitalization of the professional service sectors. In the last paragraphs, I report what emerges from the empirical analysis providing an explanation according to the contributions given by the previous literature chapters and proposals for future research.

4.2 Empirical survey: methodology and analysis

The research project is promoted by Delta Erre, a trust company located in Padua and supporting with their services the activities of the professionals and their clients, in collaboration with Registry of Qualified Accountants and Bookkeepers of Padua and the Department of Economics and Management of the University of Padua, in order to better understand the dynamics interesting the local professional service context.
The data are collected through a questionnaire sent via mail to 1400 PSFs, which are associates of Delta Erre or adherent to the Registry of Qualified Accountants and Bookkeepers of the Padua, with a cover letter explaining the extent of the survey and presenting the team in charge of the elaboration of data.
The questionnaire contains by 35 questions, organized in four sections:

- *Firm's profile*, including general information about the firm, as typology, dimension, organizational composition and investigating on the firm's online presence;
- *Firm's activities,* exploring on the actual and future variety of activities supplied, ways of providing and means of payment and on the technology pervasiveness of the professional's work;
- *Organization and network,* studying the organizational IT structure and the role of network in the provision of specific activities;
- *Respondent's profile,* including general information about the person who completes the questionnaire.

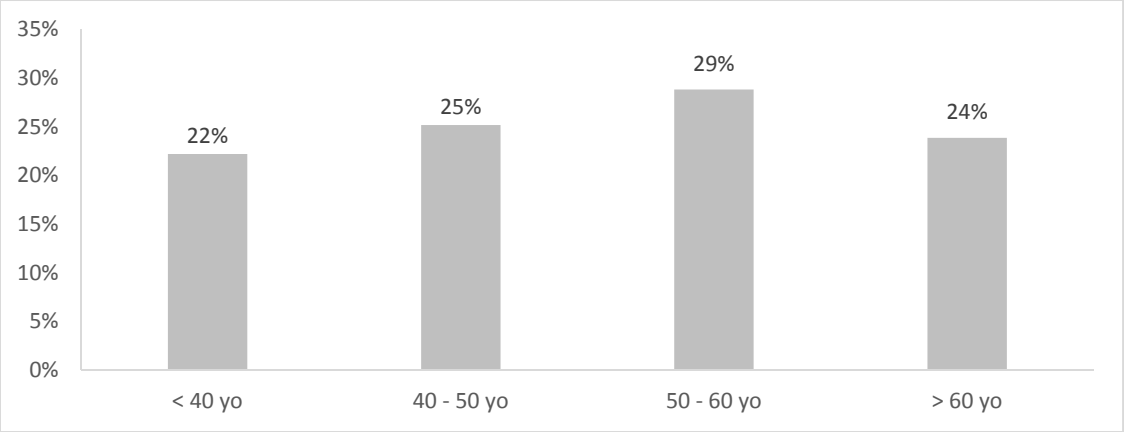
Of the 1400 questionnaires sent, 517 are returned, with 216 incomplete, providing 301

usable questionnaires and a usable response rate of 22%.

4.2.1 Respondents' profile

Focus on the demographical variables, the majority of respondents are men, accounted for 74% of the sample, with an average age of 51 years old. The age of the respondents is fairly evenly distributed (Figure 16): 22% of the professionals in the sample has less than 40 years old, living the moment of their greater professional productivity, 25% belong to the class of 40-50 years old, 29% with an age between 50 to 60 lives the moment of full professional maturity, while the 24% is over 60 years old, facing the descending phase of their professional career.

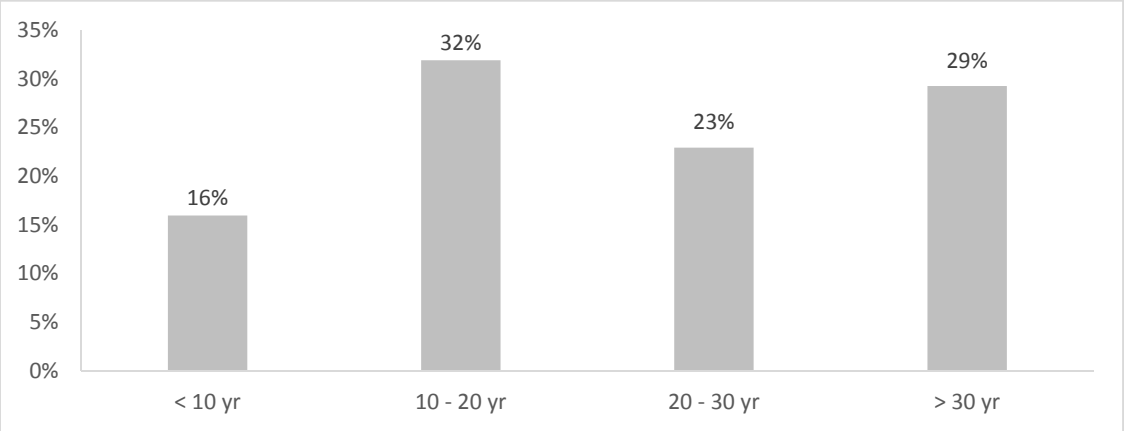
Figure 16 Age distribution of respondents



Source: Research project Professionals 4.0

Moving to the organizational role, the respondents are mainly owners or partners of the firms representing the 79%, the remaining 21% is approximately equally split between the groups of associates and collaborators. Their relationships with the firm date back to an average of 20 years, which is reasonable given the professionals' age distribution. Figure 17 shows the distribution of respondents distinguished per year of entry: 29% of the respondents entries in the firm more than 30 years old, 23% has a mature relationship lasting from 20 to 30 years old and 32% from 10 to 20 years, while a lower 16% is newer entrants compare to the previous categories, given that the carry on their rapports from less than 10 years.

Figure 17 Distribution of respondents per seniority

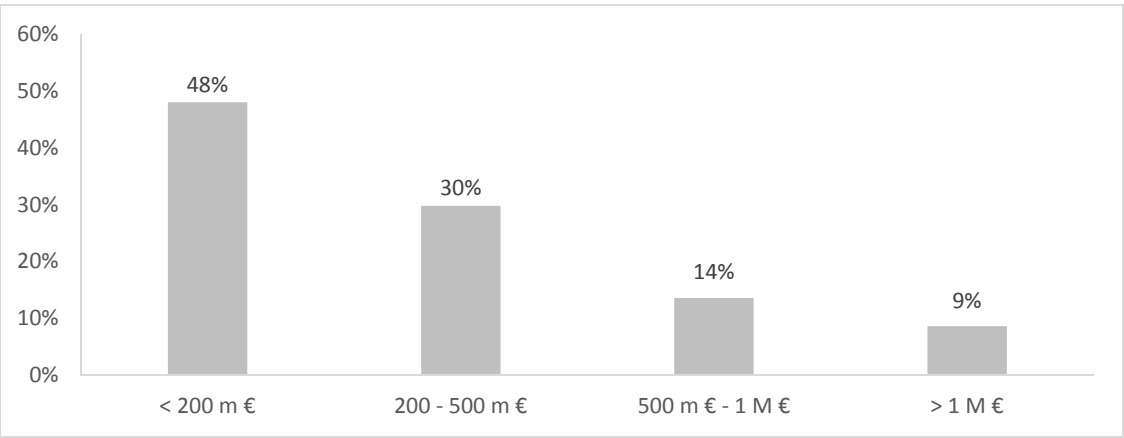


Source: Research project Professionals 4.0

4.2.2 Firms' profile

The sample includes 301 PSFs, largely situated in Padua (91%) with a turnover lower than 500,000 € (Figure 18). More than half of the firms are founded at least 20 years old, signalling the economic stability of the sample, but only a few 6 % has quality certifications asserting the excellent value of their services.

Figure 18 Firms' turnover



Source: Research project Professionals 4.0

Analysing the organizational forms, the PSFs present different legal structures, in some case complementary (Table 4), mainly individual (52%) or firms of professional associates (36%), with an average workforce of 8.24 people. Exploring the managerial compositions, the workforce can be categorized in five roles: 1.84 are owners or partners, 0.80 associates, 1.73 collaborators, 0.38 apprentices and 3.49 employees.

The data collected from the survey suggests that a greater turnover, used as a measure of

the firm's dimension, is supported by a more formalized structure counting on a higher number of workforce involved. As PSFs with a turnover lower than 500,000 € has on average personnel lower than 10 people, PSFs with a turnover higher than 500,000 present a greater amount of workforce, reaching peaks over 50 people.
Summarising, the PSFs in the sample are mainly characterized by a medium small dimension and simple organizational processes.

Table 4 *Types of PSFs*

TYPE OF THE FIRMS	AV *	%**
Individual firms	157	52%
Firms of professional associates	108	36%
Firms of professionals	1	0%
Shared firms	29	10%
Multiservice firms	10	3%
Service firms	17	6%

Source: Research project Professionals 4.0
* Absolute Value
** calculated on the total of PSFs

Unconnected professionals

From the survey (Table 5), PSFs emerge to be scarcely present in the online environment: 48% of the firms does not have a website or a social account profile resulting to be completely invisible in the web system, while only a 17% invests resources in constructing a digital identity. Ignoring the online system and the new means of communication, PSFs fail in adapting their image to the online environment, becoming critical also for the professional business given dynamic and continuously changing competitive market. Analysing the actual realization of website and social account, it appears how this instruments are perceived by the professionals.

Table 5 *Digital identity*

WEBSITE	SOCIAL NETWORK		TOTAL
	NO	YES	
NO	48%	5%	53%
YES	30%	17%	47%
TOTAL	78%	22%	100%

Source: Research project Professionals 4.0

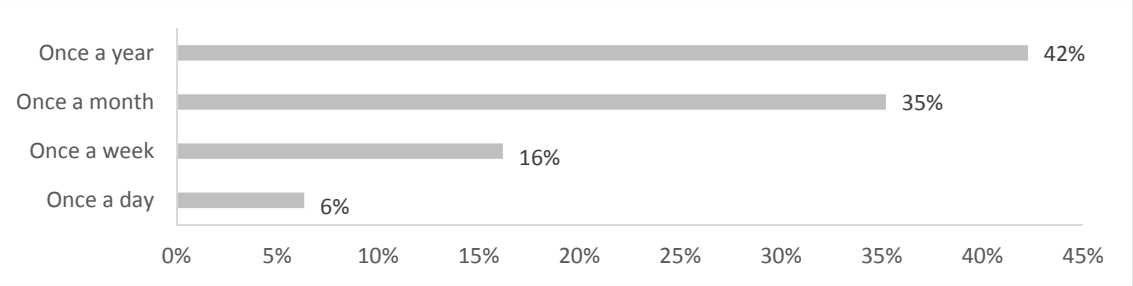
Focus on the 142 websites (Figure 19), the structure appears very simple with basic contents mainly reporting a home page (96%), the variety of services offered (90%), the professionals' introductions (77%) and the relevant contacts for communicating with the firms (75%). After its creation, the website results to be scarcely managed: Figure 20

shows that only a 6% updates the information every day, the majority renews it once a year. The website emerges to be considered as a modern yellow page advertisement directed to provide general information useful for the client in the search phase, without being part of a strategic and marketing plan directed to understand the market's interests and needs and interact with the clients. Professionals fail to not recognize the website as a critical business tools and not exploiting the potentiality provided for innovating their business.

Figure 19 Website content

Source: Research project Professionals 4.0

Figure 20 Website update frequency

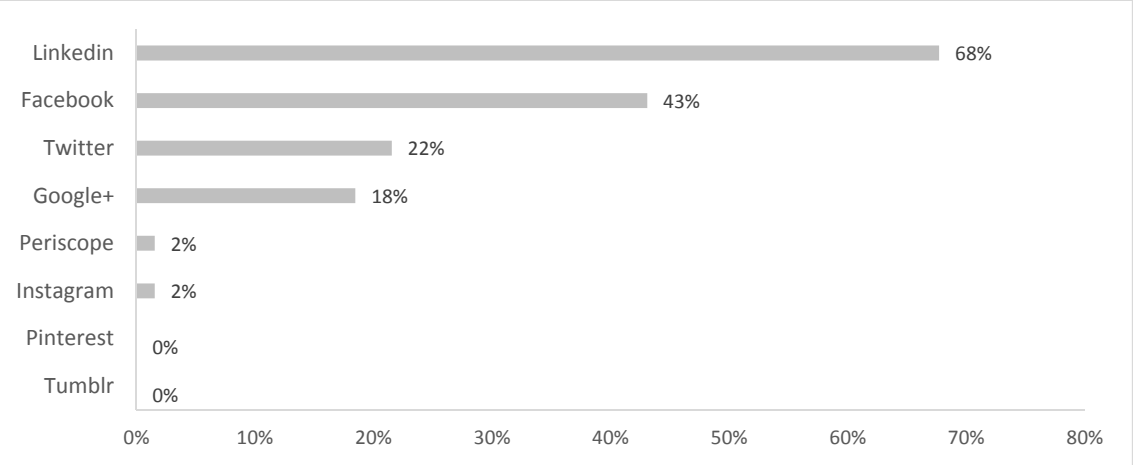


Source: Research project Professionals 4.0

If the website is not perceived as an effective and useful instrument for the business, social network is not quite considered by the PSFs as necessary one. Investigating on the 65 firms affirming to have a professional account, it emerges that they have on average 1.5 social network accounts, largely managed by the owner or a dedicated internal person (Figure 22). Figure 21 illustrates that, among all, LinkedIn (68%) and Facebook (43%)

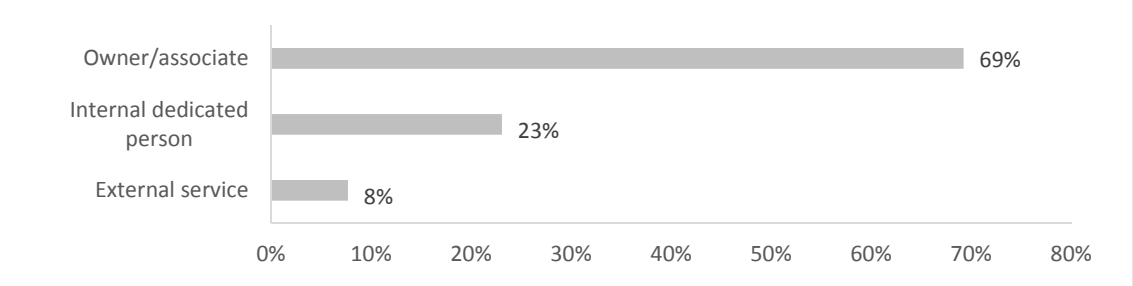
are the most widespread, followed Twitter by (22%) and Google + (18%). The presence of PSFs on social network appears to be sporadic, not integrated in the professional work processes. Professionals seem to lack the awareness and knowledge about these new tools: they should learn the differences and the opportunities offered by each tools to appreciate the advantages for the business, integrate and coordinate them with the traditional instruments to increase the value of services provided to the clients.

Figure 21 Types of social networks



Source: Research project Professionals 4.0

Figure 22 Social network responsibility



Source: Research project Professionals 4.0

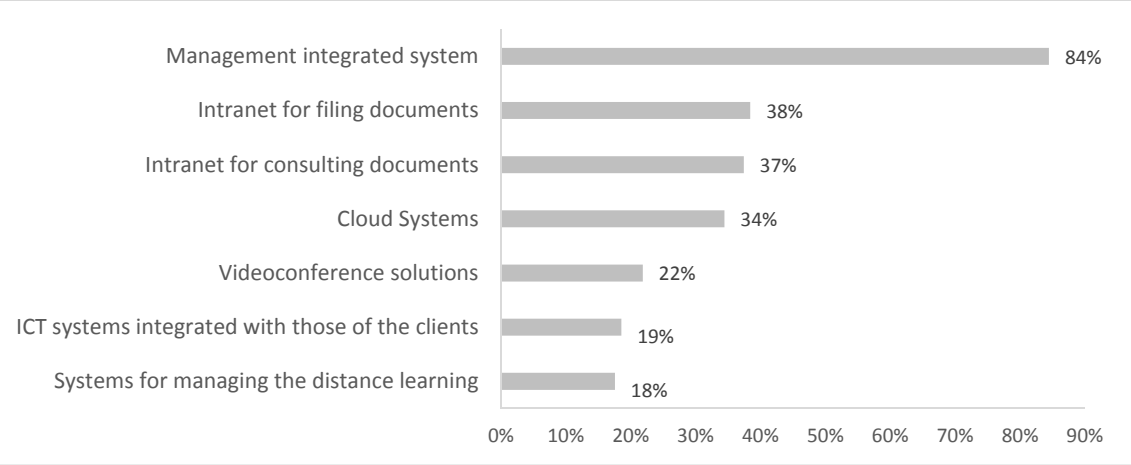
The untapped potential of ICT structure

On average, PSFs show a scarce and badly managed digital identity externally. Nevertheless, the technological pervasiveness increases internally. PSFs largely adopt a solid and formalized ICT structure, counting on an average of 2.5 technologies.

Investigating on the types of applications used, Figure 23 shows that the majority of the PSFs implement an integrated management system to support and optimize the management processes enabling a shared flow of information. More than one third adopt intranet

for archiving and consulting documents and exploit the Could systems for sharing relevant files deployed physically distant, while only around the 20% implement ICT technologies for improving the employees' competences and for fostering the relation with the clients using information systems for the daily communications and videoconference tools for discussing criticality and problems emerged. Despite the actual structure, there is still intensive room for improvement.

Figure 23 Types of ICT applications



Source: Research project Professionals 4.0

Professionals should invest in building a complete ICT structure, because technologies, in a highly competitive context, may constitute a source of competitive advantage for the business affecting the entire service portfolio.

Given that a fifth of activities supplied is completely standardized, they contribute to the automatization of the service production, reducing this part of the firms' activity to a commodity subjected to the price competition and potentially conveyed to the on demand platforms.

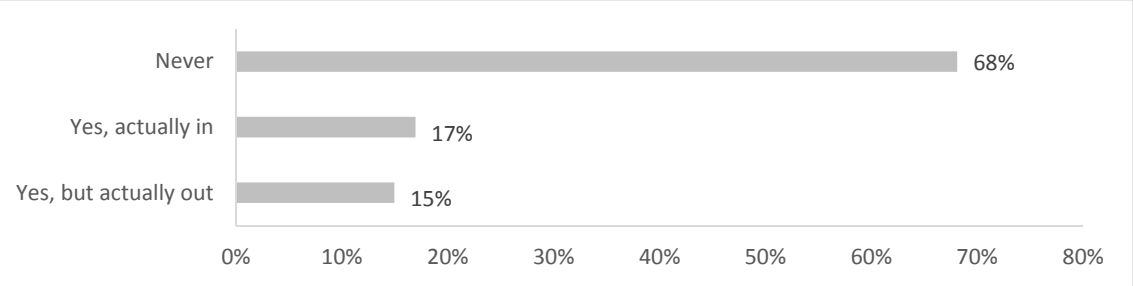
Lowering the activities requiring a professional's work, these technologies allow an extension of the portfolio and release professional energies, which can be dedicated to better deal with the value-added service.

Moreover, they enable to create an intense network supporting the access to more resources, especially for the smaller firms, and facilitating strategic collaborations with other professionals or their clients, which represent relevant sources of firms' innovation.

As mentioned in the previous chapters, the professional network plays a critical in attracting clients and supporting the production process, even though its potentiality is not all

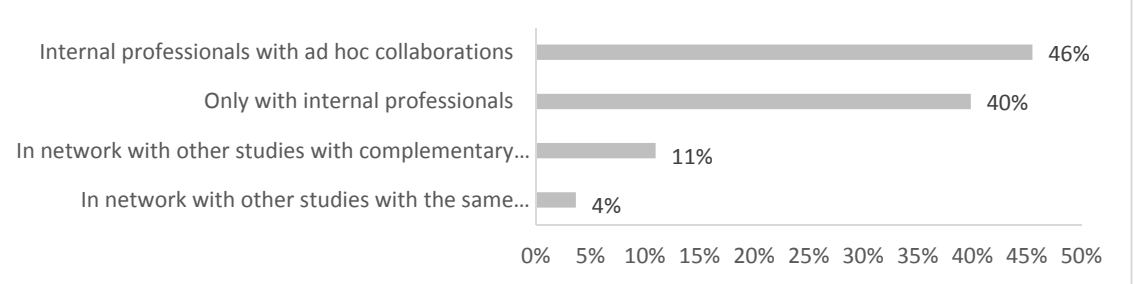
exploit in the sample. In fact, the data collected suggest that more than one half of the firms never participate to a professional network, while only the 17% is actually involved in a network with other professional (Figure 24). Additionally, Figure 25 shows that a merely 15% realize their activities exploiting network synergies, including a 4% referring to professionals with the same specialization and a 11% dealing with professional with complementary competences. These PSFs prefer to rely on the skills of their internal human capital in the production and the delivery of the professional services, while the collaborative work takes the form of occasional and ad hoc consultations and interventions justified by specific service features.

Figure 24 Participation to professional networks



Source: Research project Professionals 4.0

Figure 25 Services realizations



Source: Research project Professionals 4.0

Moving the focus on the way in which professionals' work, the percentages of use of technologies dramatically decrease: asking to the professionals their frequency in using technologies for performing their work out of the office, the more recurrent answer is *never*. Table 6 shows that it is lower than 10% the percentage of professionals who always adopt tablet or smartphone for taking note, for recording notes, bookings or spending and use communication systems or social network for interacting with clients and colleagues. The positive frequency (*always*) increase to 11% for accessing via web on firms' database, it raises to 14% for elaborating file excel or word and it reaches the peak of 24%

referring to the use of app for sharing agendas and schedules.

Table 6 Frequency of technologies on professional work

APP PER SMARTPHONE OR TABLET	ADOPTION FREQUENCY			
	NEVER	SOMETIME	OFTEN	ALWAYS
App for taking notes	43%	33%	18%	7%
Excel or word	32%	29%	26%	14%
Access to firm's database/archive	39%	24%	26%	11%
Social network between colleagues	70%	16%	10%	5%
App for sharing agenda	41%	13%	22%	24%
App for logistic management	68%	18%	7%	7%
Communication systems	46%	35%	14%	6%

Source: Research project Professionals 4.0

Actual and future portfolio of activities

The actual portfolio of activities is largely conventional: the majority of the PSFs in the sample performs traditional services (Figure 26) as bookkeeping and auditing activities (92%), accounting service (91%), tax consultancy (85%) and statutory auditing of the accounts (66%). Beyond the traditional activities, the majority of the larger PSFs broadening their service offering embracing more general consultancy activities, as providing strategic advice and organizational consultancy and supporting with their technical expertise to extrajudicial processes or bankruptcy procedures. Only a 20% of the smaller counterpart enlarges their portfolio of services to unconventional activities. Moreover, the 28% of the PSFs, mainly consisting with the larger firms, actually includes in their portfolio international activities, while the 22% are going to perform them in the near future (Figure 27).

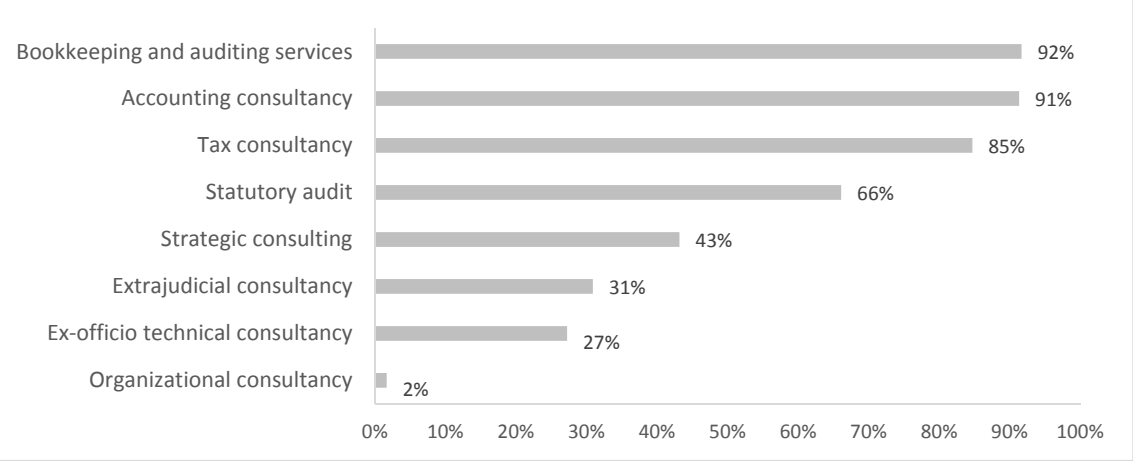
All the activities, national and international, are mainly realized by internal professionals, supported by discontinuous and ad hoc cooperation of external expertise.

Looking at the delivery means, the physical presence of the client in the office remains the more common way to supply all services included in the professional portfolio. The use of email or telephone calls for giving a consultancy are frequently adopted, largely in case of more standardized service: they are employed respectively on average by the 80% and the 70% of the PSFs. Any other service deliveries strongly implying the use of the new technologies present huge room of improvement: on average, the 20% of the firms use Skype for providing expert advice, the 7% communicate with the client through a reserved area of website, while only the 3% through app for smartphone and tablet.

It should be reasonable to expect that PSFs show higher percentage in the use of more

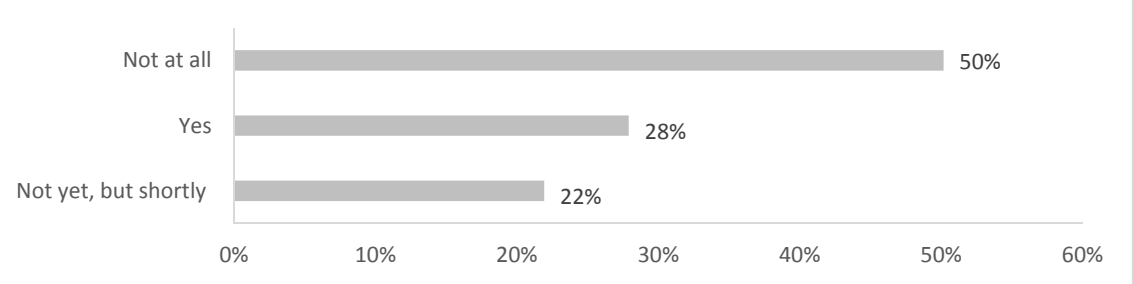
digital technologies for activities that for nature are subjected to a greater standardization, as the bookkeeping and auditing services, the accounting consultancy, the tax consultancy and the statutory audit, than for the others less standardized. The data seem to not support this hypothesis: surprisingly, the PSFs reach their greatest scores in using the App for performing the organizational consultancy.

Figure 26 Portfolio of services



Source: Research project Professionals 4.0

Figure 27 International activities



Source: Research project Professionals 4.0

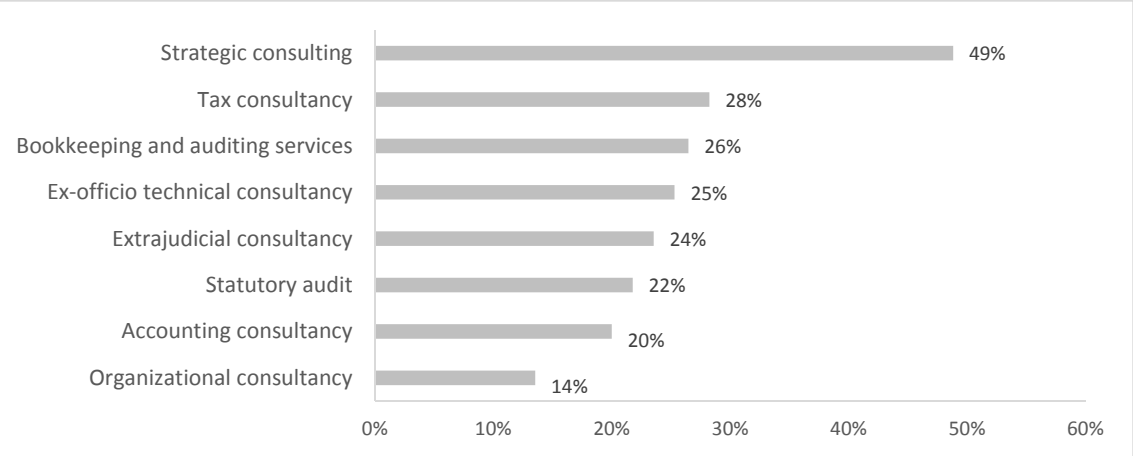
The professional reticent in using any form of new technology depends on the widely widespread prejudice in the professional context, characterized by a strong confidence and protection over the own area of expertise, that the role of the person is determinant to add value to the service, intrinsically highly relational and customized. In a mature business, failing to recognize the potential opportunities offered by the technologies for innovating and keeping competitive in the market could lead to the disappearance of many firms. A successful PSF would be the one who is able to satisfy the higher qualified and sophisticated demand with a high level and innovative supply, wisely forecasting and managing the necessary change imposed by the competitive environment.

The data collected suggests that slightly more than 50% of the PSFs believes that their offerings will vary in the next five years in order to acquire a complete auditing profile and to assume a significant role in the strategic consultancy (Figure 28). In terms of ways of supplying (Figure 29), while the traditional tools remain preponderant, it is increasing the percentage of services delivered through digital channel, including communication systems, website and app for smartphone and tablet: these findings suggest the beginning of a digital transformation occurring in the professional context. It is reasonable to expect that when this digital transformation reaches the critical mass, a competitive pressure will speed up the process investing the entire sector.

With a widen and innovative offering, including quick response, ad hoc solutions to standardise problems via web and technology devices, webinar and videoconference for updating of the legislation, PSFs are ready for entering in the world of the on demand economy. On the demand side, the clients, using a smartphone or a tablet, will be able to immediately buy a professional service offered in an online platform. On the supply side, professionals can interact and collaborate with other professional, each one performing and exchanging a specialized part of a larger project according to their competences.

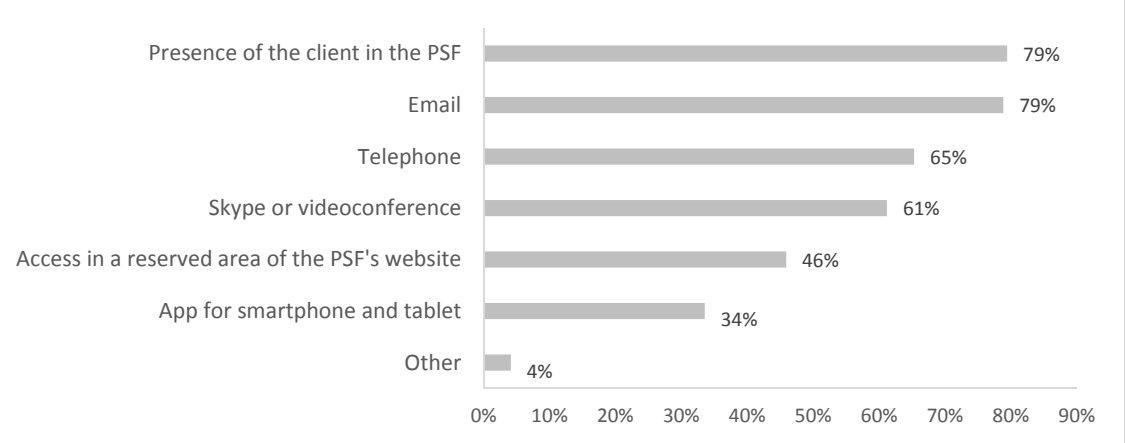
Defining the supply is only the first step of the purchase process, the PSFs need to objectively evaluate the individual service according to the time spent on and define the appropriate means of payments. Considering the relational content of the professional service, a prepaid card appears to be the best mean of payment: requiring a client monetary investment in the PSFs, the client is stimulated to be more informed and increase their purchases. An opposite opinion emerges from the sample (Figure 30Figure 30 Means of payment): the majority of the professionals would find in the credit card the appropriate tools for paying the new digitally driven services, except for the quick response services which is believed to be offered without paying.

Figure 28 Activities to add in the next 5 years



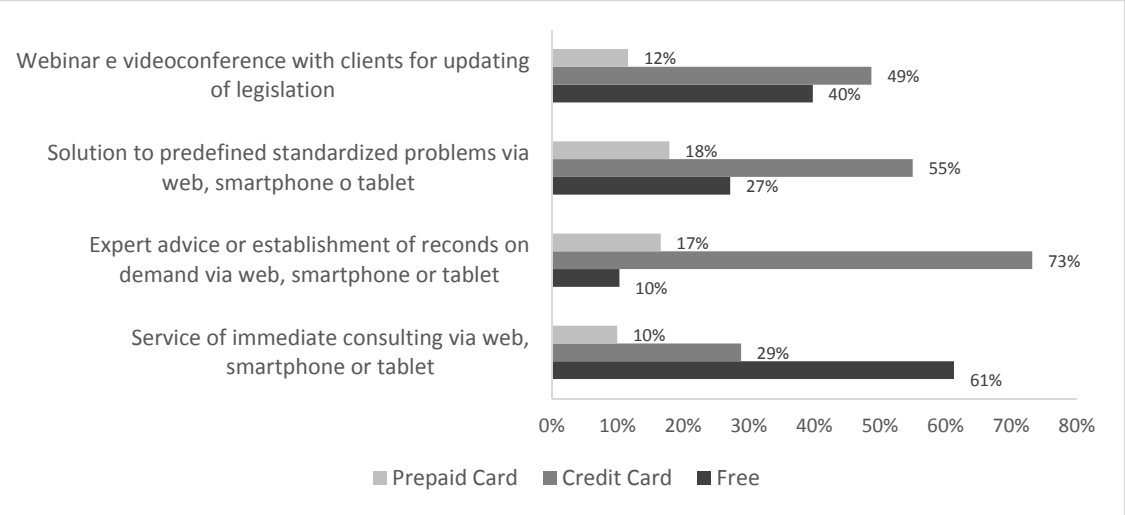
Source: Research project Professionals 4.0

Figure 29 Ways of supply in the next 5 years



Source: Research project Professionals 4.0

Figure 30 Means of payment



Source: Research project Professionals 4.0

4.3 Research questions and variables

The empirical analysis has the aim to investigate on the organizational factors affecting the evolution of the digitalization within the population of the PSFs, represented by a sample of 301 firms. The first step consists in defining the research questions and the variables used for delineating the phenomenon.

4.3.1 RQ 1 - The completeness of the website

Theoretical background

In chapter 3, I argue that a client relies on a qualified PSFs because he does not have the knowledge and the competences for assessing his situation and for determining what he needs. As suggested by Colin (2016), nowadays clients, given their increasing organizational complexity, search for skilled professionals able to deal with technology and comprehend their innovative and digital language. Numerous articles in the professional literature support the idea that the establishment of a website is a useful way to express the professional technology competence. Elfrink et al. (1997) argues as advantage of having a website the improvement of firms' image as technology adept. Clikeman and Walden (1998), investigating on 131 small and medium-sized accounting firms, find out that the firms with a website are successful in being update to ICT changes or at least in demonstrating their technological expertise resulting in attracting new clients but also valuable professionals. Moreover, they reveal that several accounting firms believe that establishing an effective website improves the services offered to the clients and enhance the communication with other professionals. Clikeman et al. (1998) go a step further, suggesting the features that a website should be to be effective and well designed:

- Mission statement;
- Description of the firm and contacts;
- Definition of the services;
- Biographies of partners;
- Free information;
- Links to business or accounting Web sites;
- Links to other non-business websites;
- Client testimonial and links to their site;
- Description of employment opportunities.

Wolosky (1997) stresses the relevant role played by the home page in familiarizing with potential clients and initiating a relationship.

Developing Variable 1

Considering the website as a way to convey the technology expertise, my first research question consists in determining the efficacy of the professional website. To answer to this question, I develop the first variable, named *completeness of the website,* which measures the number of sections that the website has. Firstly, according to the recommendations provided by Clikeman et al. (1998) and Wolosky (1997), I identify the following 13 sections representing the content of an ideal high quality website:

- Home page
- Supply description
- Professionals introduction
- Contacts information
- Area reserved for Clients
- Area for interventions and comments
- Indications of the participating networks
- Press release available for everyone
- Area for recruiting
- Area reserved for Professionals
- Press release available for clients
- Indications of the principal clients
- Other

The variable value varies from 0 (absence of a website) to 13 (complete website).

4.3.2 RQ 2 - The social network provision

Theoretical background

In chapter 3, I describe the credence good nature of the professional services, stressing the client's difficulty in selecting the suitable service providers and evaluating his performances, given his disadvantageous information position. A good professional should implement some mechanisms for proving and communicating his competences and reassur-

ing the client, reducing the uncertainty pervading the advisory relationship. The establishment of a valuable long-term relationship passes through a perceived feeling of trust, involving the parties to commit for working together. Moreover, as written in chapter 1, the professional service develops from the combination of individual, group, organizational and interorganizational knowledge: every knowledge input is critical for its quality. In the last decade, new social technologies, including social networking and microblogging platforms, have been developed, representing today important conduits for the business (Riemer and Scifleet, 2012). In a framework where discussions occur in digital platforms and image and reputation increasingly pass through online mechanisms, social networks represent for PSFs catalyst of exposure. According to Catarozzo (2014), they carry out different functions:

- create curiosity and direct the connected users to the firm website;
- permit to enter and create a reputation on online communities and forum;
- represent the professional activities with multimedia tools;
- enable the communication and the collaboration with colleagues:
- allow the continuous updating on events or relevant materials.

Given the professional service nature and the potentiality of the social network, the social networks represent a critical business tool for PSFs, by supporting them in developing and innovating their business, creating a strong digital identity, forming new relationships and enforcing the existing ones (Catarozzo, 2014). To do so, professionals need to know the proper languages and roles of each instrument, define the target they want to reach and the competences to express.

Developing Variable 2

Considering the social network as a strategic tool for the professional business, my second research question consists in determining the presence of PSFs on the social network. To answer to this question, I develop the second variable, named *social network provision,* which calculate the amount of professional accounts on social network.

Considering the indications made by Catarozzo (2014) and looking at the most widespread tools in the other sectors, I identify 9 different types of social networks:

- Linkedin, the social network connecting people known in the working environment;

- Facebook, the most famous social network adopted by more than 1,6 billion of people for entertainment and business aims;
- Google+, the social network promoted by the namesake company, permitting to create groups according a matter of interest;
- Twitter, a microblogging allowing to communicate through concise messages;
- Instagram, a social network platform enabling the users to upload, edit and share photos and videos;
- Pinterest, a social network permitting to organize and share photos, images and videos from the web according to predefined topics;
- Periscope, a social network allowing to share live video content and records;
- Tumblr, a creative alternative of Facebook, permitting to post multimedia contents in a short form blog;
- Others, letting the professionals to freely express their alternatives choices.

The variable value varies from 0 (absence of an account on social network) to 9 (presence on all identified social networks).

4.3.3 RQ 3 - The inclination for on demand economy

Theoretical background

The on demand economy is growing faster across all economic sectors: a recent research conducted by Intuit Inc. and Emergent Research forecasts that the American workforce involved in the on demand economy will double, from 3.2 million to 7.6 million, by 2020. As written in chapter 1, digital platforms create new market for the professional services, characterized by insignificant marginal costs and low barriers to entry (Manyika et al., 2016). This makes possible for new players to enter in the professional environment challenging the incumbents with new business models and new ways of attracting and interacting with the clients. The existing PSFs should ride the wave of the on demand economy for innovating their services and the delivery systems to satisfy the more demanding clients (Colby and Bell, 2016). The implementation of digital technologies in the professional activities implies a process re-engineering toward a greater standardisation and automatization internally, and the virtualization of the professional relationship externally. The digital nature of the relationship does not imply a loss in value, actually in the chapter 3 I explain how the technologies can empower the relational assets.

Developing Variable 3

Considering the actual economic environment and the opportunities provided for the PSFs, my third research question consists in determining the degree of digitalization of the professional relationship. To answer to this question, I develop the third variable, named *inclination for on demand economy,* which estimate the shift of PSFs from traditional delivery systems to innovative and digital ones. Firstly, I identify 8 potential activities (bookkeeping and auditing services, accounting consultancy, tax consultancy, statutory audit, strategic consulting, extrajudicial consultancy, ex-officio technical consultancy, organizational consultancy) and the following 6 ways of delivery, shown in ascending order of digitalization:

- Presence of the client in the PSF
- Exchange documents through email
- Consulting through telephone
- Skype or videoconference
- Access in a reserved area of the PSF's website
- App for smartphone and tablet

I construct an attitudinal scale, according to which a number from 1 to 6 is associated to each *delivery system*, following the hierarchy.

In other terms, 1 identifies the most traditional model (presence of the client in the PSF) and 6 to the most digital system (App for smartphone and tablet), 2, 3,4,5 is orderly associated to ways within the extremes (email, telephone, Skype, access to reserved area, app). Then, assuming that if a PSF adopt the more innovative system, it is able to use the less innovative ones, the reported maximum number is assigned to each activity. These values per activity are summed and weighted for the number of activity performed by the PSF multiplied by 6, representing the maximum degree of digitalization. The result is normalized to 1.

4.3.4 RQ 4 - The predisposition to work digitalization

Theoretical background

The professional activity implies a set of repetitive actions conducted in order to acquire and combine inputs for producing a service solution. Nowadays, new technologies may potentially revolutionize how a professional work. Essentially, what he need to perform

his daily activities is a smartphone or a tablet. An office, or the physical presence in the office, is no more required: a professional could access to the firm's database via web, communicate with his colleagues through private social networks and interact with the clients using videoconference systems. The administrative activities, consisting mainly in taking appointments, noting bookings and spending and reminding deadlines, could be easily done using apps. Moreover, adopting an on demand business model, he may offer their services in a digital platform and tap his underused hours embracing new clients, according to their locations. As written in chapter 1, he would decide freely when log to the platform, which tasks accept or offer according to his availability in terms of time and effort.

Developing Variable 4

Considering the nature of the professional activities and the opportunities provided by the new technologies, the fourth research question consists in determining the degree of digitalization of the professional work. To answer to this question, I develop the fourth variable, named *predisposition to work digitalization,* which estimates the frequency of use of mobile tools in performing the typical working activities. Firstly, I identify 7 potential useful mobile apps (apps for taking notes, excel and word, for accessing to the firm's database, sharing the agenda and for the logistic management, social networks and videoconference systems) and 4 frequency of use:

- Never,
- Rarely,
- Often,
- Always

Inspired by Linkert scaling, I build an attitudinal scale according to which a number, from 0 to 3, is associated to each adopting frequency, following a logical reasoning: 0 stands for never, 1 for rarely, 2 for often and 3 for always. Then, the reported numbers for each apps are summed and weighted for 3, representing the maximum frequency, multiplied by the total number of apps, assuming that not using an innovative instrument available to the professional is not a strategic choice. The result is normalized to 1.

4.4 Methods

The second step involves the definition of the method used for studying the phenomenon.

I choice the hierarchical cluster analysis, because I believe that it is the technique which provides the most clear and explanatory results, given the variables available, for describing the evolution of the digitalization in the PSFs.

Cluster analysis

The cluster analysis consists in a statistical method for dividing the observed cases in the sample into homogenous classes, the *cluster*, maximizing the similarity of the cases within the groups and the dissimilarity between the groups (Norušis, 2012). The clusters are unknown a priori, in terms of number of clusters necessary to define an optimum classification and intrinsic characteristics (Ricci, 2003). The cluster analysis is an exploratory analysis such that it does not require the determination of assumptions, but it needs a set of subjective decisions affecting the resulting classification. First of all, the formation of the clusters requires (Norušis, 2012):

- the identification of the variables according to which the cases have to be similar;
- the choice of the clustering procedure.
- As variables, I use the four quantitative variables, described in the previous paragraph. Then, given that I do not know the right number of clusters representing the sample, I adopt the hierarchic method, a procedure which generates a set of groups arranged hierarchically, in the sense that at any level each cluster belongs to a greater cluster at the upper level (Barbaranelli, 2006). Following an agglomerative technique, at the beginning of the procedure each cluster coincides with an individual case, then the clusters are combined sequentially, reducing in number at each level, until only one is left. For proceeding with the formation of the clusters through the hierarchical cluster analysis, I have to define (Norušis, 2012):
- a criterion for determining similarity or distance between cases;
- a criterion for gathering together the clusters at a following steps;
- the number of clusters required for representing the sample.

Given that the variables are quantitative, I apply the *squared Euclidean distance*, which is the most frequently used distance measure given their easiness to compute (Ricci, 2003). It consists in the sum of the squared differences between all the variables. The distance criterion is enough to form a cluster, when the clusters have only one cases. As the agglomerative procedure goes on and the clusters contain more than one cases a gathering criterion, based on the distance between couples of clusters, needs to be introduced.

Given that the selected variables are measured at interval level, I adopt the *Ward method*, using an analysis of variance approach to measure the distance between the clusters (Barbaranelli, 2006). For each case within the cluster, the total sum of squared deviations from the mean for all variables are measured. The Ward method consists in minimizing the variance within each cluster: at each step, the clusters that merge are those which generate the smallest increase in variance within the groups. The agglomeration schedule reports as coefficients the scores of the sum of squared within cluster distance. Focus on those coefficients, it is possible to determine the number of clusters needed to represent the sample, stopping the formation of cluster when the difference between two adjacent coefficients is large (Barbaranelli, 2006; Norušis, 2012). I choice a *three-cluster solution*, because moving from three to two clusters the distance coefficient would increase of 258.73, from 397.126 to 655.856. After having defined the clusters, I am interested in determining the descriptive variables of each cluster. Considering the available variables regarding the profile of the firms (organizational form, constitution year, presence of quality certification, turnover and workforce) and of their respondents (age, role, entry year), I proceed by performing a one-way ANOVA to verify which of the considered variables are significantly different between the groups. The one-way ANOVA is a statistical technique used to compare the mean of one or more groups, considering their variances (Diaz, 2001). This test verifies whether exists significant difference between the group's mean values to determine if the groups are representative of the same population. In conducting the one-way ANOVA, I codify the qualitive variables in quantitative ones to calculate the required groups' statistic parameters. If the one-way ANOVA reveals that the differences in groups' mean are statistically significant for a variable, it means that this variable is reliable to characterise a cluster, distinguishing it from the others. The test results do not specify which of the three groups differ from one another, so I conduct a post hoc test to get more information on the difference between the clusters (Newsom, 2013). I choice the Turkey's test, the traditional approach for a pairwise comparison among means, to show where the differences lie. Consequently, I can determine the variables that described each individual cluster.

4.5 Results

The cluster analysis partitions the 301 PSFs forming the sample in three clusters (Table 7), which represent three different levels of progress of the digital phenomenon, according to the values reported on the clustering variables.

First cluster

The first cluster represents the highest degree of professional digitalization. As it might be reasonable to expect it is the smallest in number, including only 27 firms. These PSFs can be considered the most innovative firms, exhibiting great value for the all the four clustering variables. The 74% of these firms invests in realizing an effective digital identity: the totality has a website, presenting more than the majority of the sections recommended, while the largely majority owns at least a professional account on a social network. Moreover, these PSFs significantly exploit the digital technologies in delivering the professional services, transferring part of their services on the online channel. The attitude of their professionals to use the mobile devices in performing the working activity is medium high, slightly lower than the digital transformation involving the firm's business model. Focus on their organizational traits (Table 8), the PSFs, grouped in this cluster, are characterised for being constituted on average more than 30 years ago, less recently that the counterparts in the other clusters. They have a great turnover and a large workforce.

Second cluster

The second cluster denotes the intermediate level of the digital phenomenon. It includes 101 firms, presenting medium scores for all the variables. Comparing to the first cluster, these PSFs halve their values in terms of goodness of digital identity. Even though the totality of the firms builds a website, it does not appear to be a well-designed tool: its structure is basic, showing only the essential sections. The situation worsens looking at the presence in the social network: only the 23% has an account on a social network, while the remaining 73% does not believe in the strategical effectiveness of this instrument. A digital transformation involving the professional processes and working activities appears to occur slowly: the firms' predisposition in using technologies for supplying the services is medium high, while the digitalization of work reaches a medium low score. On the organizational perspective (Table 8), the PSFs collected in the second clusters distinguish themselves for having a medium turnover.

Third cluster

The third cluster represents the lowest degree of professional digitalization. It groups the greatest number of PSFs, amounting to 173. These firms are the less innovating firms, revealing low value for the all the four clustering variables. Their presence on the online environment is very scares: only the 8% has a website, the percentage increases to 10 looking at adoption of a professional account on a social network. Comparing with the inadequate digital identity, it is surprising that the firms in this cluster show a medium high score on the inclination to the on demand economy: it appears to suggest the beginning of a digital transformation involving the professional processes. This change seems to not interest the professionals, which still prefer traditional ways to mobile devices in conducting their working activities. To characterize the PSFs grouped in this cluster (Table 8), they largely consist in firms adopting an individual organizational form, not presenting a quality certification and making a low turnover.

Table 7 Three clusters solution

VARIABLES	CLUSTER 1 N=27		CLUSTER 2 N=101		CLUSTER 3 N= 173	
	η*	σ**	η*	σ**	η*	σ**
Completeness of the website	8.15	1.43	4.72	1.14	0.12	0.43
Social network provision	1.11	1.22	0.50	1.01	0.12	0.36
Inclination for on demand economy	0.57	0.11	0.47	0.12	0.45	0.14
Predisposition to work digitalization	0.48	0.28	0.33	0.22	0.26	0.21

Source: Research project Professionals 4.0
* Mean
** Standard deviation

Table 8 Describing variables of the clusters

VARIABLES	CLUSTER 1 N=27		CLUSTER 2 N=101		CLUSTER 3 N= 173		ANOVA F	SD*** α=0.05
	η*	σ**	η*	σ**	η*	σ**		
Organizational form	0.78	0.42	0.57	0.50	0.30	0.46	18.72	[1,3]; [2,3]
Constitution year	1982.6	16.65	1990.5	17.55	1993.9	12.66	7.33	[1,2]; [1,3]
Quality certification	0.19	0.40	0.10	0.30	0.01	0.11	9.69	[1,3]; [2,3]
Turnover	853.70	428.08	427.23	349.54	248.27	245.83	50.05	[1,2]; [1,3]; [2,3]
Workforce	27.11	24.42	8.11	7.05	4.52	4.37	74.92	[1,3]; [1,3]
Rispondent's age	52.85	14.56	50.94	12.27	51.51	11.73	0.27	
Owner or partner	0.74	0.45	0.76	0.43	0.82	0.38	0. 92	
Associate	0.11	0.32	0.12	0.33	0.08	0.27	0.56	
Collaborator	0.15	0.36	0.12	0.33	0.10	0.30	0.36	
Entry year	1992.1	13.80	1997.4	12.83	1996.94	11.66	2.09	

Source: Research project Professionals 4.0
* Mean
** Standard deviation
***Significant Different

4.6 Discussion

After having reported the resulting clusters and their characteristics, I proceed with the discussion of organizational elements which appear to affect the capacity of the PSFs to enter into the on demand economy and exploit its potentiality.

Organizational factors supporting the digitalization process

From the first cluster, it emerges that, contrary to what it should be reasonable to expect, *an average older age of the firms* support the digitalization process: the firms which are constituted less recently have a greater digitalization compared with the more recent counterpart. The explanation of this finding concerns with the perception that the firm conveys to the market. As suggested by Kaiser and Ringlstetter (2011), the improvement of the perception of a PSFs passes through the development of reputation. As I written in the chapter 3, a good reputation is considered as a signal of the service quality and as guarantee of a satisfactory outcome. Reputation requires time to be developed and continuous proofs to be confirmed. The older firms rely on a long and valuable story, which provides the basis for the creation and the maintenance of a firm's reputation. A good reputation is generally rewarded by a client's trust feeling which nurtures the establishment of long-term relationship. As explained in chapter 3, the feeling of confidence depends on the client's expectation that the service provider is a reliable expert with high integrity. Despite the general scepticism toward an innovation altering the status quo, the fact that the firm promoting the change has the reputation to be trustful and competent reduces the client's diffidence and enables the firm to implement the innovative business model. Moreover, the *availability of financial and human resources* allows the model to be operational. PSFs with a numerous workforce may invest in specializing their professionals in different systems of delivery. Exploiting learning economies, the PSFs can improve their knowledge base and satisfying their demanding clients, asking for in time innovative solutions.

Organizational factors not supporting the digitalization process

From the third cluster, it emerges that the *individual organizational form and the low turnover* do not support the digitalization process. Considering the average age of the professionals, the cognitive investment required by the introduction of the new technology in the professional processes results to be not convenient. The time to recovery of the investment is larger than the potential career time horizon. Moreover, this investment is

neither justified by the demand: given the low dimension of the market, a PSF is required to use the innovative systems only few times. Unless investing in an economically inconvenient internal re-organization, they may enhance the ad hoc strategic collaborations with other PSFs establishing a continuous and mutual valuable relationship or they may rely on professionals specialized in the provision of one or more activities through an innovative system. Becoming an expert of a delivery system and providing his knowledge as service provider of many traditional PSFs could be a suggestion for the young professionals approaching to the legal and socio-economical activities.

4.7 Further research

Professional services are described in the chapter 2 and 3 as *human intensity* activities produced and developed within a close *face to face interaction* with the clients. Cameran et al. (2010) argues that the professional service process is highly people-based, requiring the mutual presence of professional and client to establish a mutual feeling of confidentiality, necessary for the development of a consultancy relationship.
Through my dissertation, I show how the digital transformation challenges the pillars of the traditional definition of the professional services. By doing so, I believe that three different paths for future research can be delineated.

Services as commodities

In chapter 2, I argue that the output of the PSFs, consisting in an intangible knowledge based service, is little standardized and characterized by a high degree of complexity and customization. In chapter 3, I proceed stating that the nature of the outcome make stronger the credence attributes of the professional services. Nevertheless, from the analysis of the PSFs sample, a half of the activities consists in customized services, while the remaining half involves activities which are partially or completely standardized. Technologies can be implemented in automatizing the production process of the latter, reducing their complexity and human dependence. These services result to be deprived of their credence nature and to become commodities, which can be subjected to the price competition and purchased on digital platform. Today, with the introduction of the e-invoicing, the invoicing process becomes a flow of data.

According to the experience of Menocarta.net[1], the professionals appear to play the role of the responsible of the preservation of the digital documents and to endorse the validity and law conformity of the whole process towards the bank system, assuming an intermediary role between the firms and the credit institution. In the future, it may occur that a client asks for on demand accountancy activity trough a virtual platform: the accountancy activity becomes a gig and the professional a gig worker.

New business model: on demand consultancy

As written in chapter 1, digital platforms create global and efficient market for the professional services. In a recent article of the Corriere Imprese, Girardo argues that the implementation of the new technologies in the business revolutionizes the organization of the professional work and the variety of services offered to the clients. To exploit the potentiality of the digital technologies and satisfy the new emerging demand, the PSFs should codify the existing knowledge and store it in intelligent database able of learning by experience. In addition, they should reorganize their business to provide in time innovative solutions for their clients' needs. The case of Spolverato&Barillari PSF[2], a well-known firm of Padua expert in labour law, represents an outstanding example of how technologies enable new business model. In 2011, the firm introduces Pronto HR service consisting in providing through a digital platform an on demand online consultancy regarding labour law issues in 8 working hours, paying with a prepaid card. The functioning is simple and linear: by sending an email or filling out a predefined format, the client's question arrives to the platform, the automatic system, firstly, quotes it according to the estimated response time and then efficiently allocates the question to the available professional according to its content and difficulty. After five years, the digital system represents an alternative marketplace, accounted for 1835 registered users, 6000 consultancies with an average response time of 15.8 hours. It does not cannibalize the traditional consultancy, actually, referring to a specific target manly involving professionals interest in explanations on labour law matters, results to be a vehicle for acquiring new clients.

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[1] http://www.menocarta.net/ *Menocarta.net is a network resulting from the combination of 8 firms, which support the PSFs in the process toward the dematerialisation and the legally compliant archiving.*

[2] http://www.shritalia.com/

Innovative ways of relating

In chapter 3, I argue that technologies empower the consultancy relationship, lessening the ex ante and ex post asymmetry of information and creating a direct communication channel within and outside the firms. Technologies allow to innovate in the way of interacting with the clients. Moving to the online ecosystem, face to face interactions convert in a dialogue between digital identities. As in the reality the image of the firms and the appearance of the professionals influence the actual or the potential consultancy relationships, an effective digital identity results to be critical in originating or maintaining relationships valuable for the firms. The challenge for the PSFs stands in being able to create a digital identity which augments the real one. In this chapter, I introduce the importance of a well-designed website to convey an image of technological competence and the relevance of the social network as a catalyst of exposure. Going a step further, Barbieri & Associati Dottori commercialisti PSF[3], a firm with more the 40 years of activity in the city of Bologna, innovates the rule of the client's engagement with the project "Vuoi noi? Parliamone!", winner of "Digital professional reward 2016" given by Politecnico di Milano, for the accounting sector. Interpreting the website as a critical interface with the clients, an automatic chat is created when the guest remains in the website more than a fixed time to permit to initiate a dialogue with him.

The consultancy relationship is getting more virtual, what appears from my dissertation is that the older PSFs are leading the digital revolution.

[3] http://www.barbierieassociati.it/

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